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TESTING
CNAS L0446

GRGTEST

Page 1 of 60

Test Report

Verified code: 538733

Report No.: E20230331478001-7

Customer: Lumi United Technology Co., Ltd

Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

Sample Name: Hub M3

Sample Model: HM-G01E

Receive Sample Date: Aug.02,2023

Test Date: Nov.22,2023 ~ Dec.06,2023

Reference Document: ETSI EN 300 440 V2.2.1 (2018-07)

Test Result: Pass

Prepared by: Chen Xiaocong
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Jiang Tao

Approved by: Xiao Liang
Xiao Liang

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2023-12-29

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20230331478001-7	Original Issue	2023-12-22

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1. TEST RESULT SUMMARY

Transmitter Part				
Standard	Item	Standard Clause	Limit	Result
ETSI EN 300 440 V2.2.1 (2018-07)	Equivalent isotropically radiated power (e.i.r.p.)	4.2.2	25 mW e.i.r.p.	PASS
	Permitted range of operating frequencies	4.2.3	5725 MHz to 5875 MHz	PASS
	Unwanted emissions in the spurious domain	4.2.4	ETSI EN 300 440 Table 3	PASS
	Duty cycle	4.2.5	ETSI EN 300 440 Table 4	PASS

Receiver Part				
Standard	Item	Standard Clause	Limit	Result
ETSI EN 300 440 V2.2.1 (2018-07)	Blocking or desensitization	4.3.4	ETSI EN 300 440 Table 6	PASS
	Spurious radiations for RX	4.3.5	4.3.5.4	PASS

----- The following blanks -----

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Lumi United Technology Co., Ltd
Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.2 MANUFACTURER

Name: Lumi United Technology Co., Ltd
Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Hub M3
Model: HM-G01E
Adding Model: HM-G01D
Models Difference: The model NO. HM-G01E & HM-G01D have the same technical construction including circuit diagram, PCB LAYOUT, hardware version and software version identical, except sales area and packaging are different.
Trade Name: Aqara
Power Supply: DC 5V/2A or PoE input 48V/0.27A
Frequency Range: 5745MHz~5825MHz for IEEE 802.11a, 802.11n HT20, 802.11ac VHT20; 5755MHz~5795MHz for IEEE 802.11n HT40, 802.11ac VHT40; 5775MHz for IEEE 802.11ac VHT80
Modulation type: IEEE 802.11a: OFDM
IEEE 802.11n: OFDM
IEEE 802.11ac: OFDM
Channel space: 20MHz for IEEE 802.11a/ n HT20/ac VHT20 mode; 40MHz for IEEE 802.11n HT40/ac VHT40 mode; 80MHz for IEEE 802.11ac VHT80 mode;
Antenna Specification: PIFA antenna with 0.2dBi gain (Max)
Temperature Range: -10 °C ~ +50 °C
Hardware Version: V2.0.5_1060
Software Version: T0
Sample submitting way: ■ Provided by customer Sampling
Sample No: E20230331478001-0001, E20230331478001-0003, E20230331478001-0004
Note 1: The EUT antenna gain is provided by the applicant. This report is made solely on the basis of such data and/or information. We accept no responsibility for the authenticity and completeness of the above data and information and the validity of the results and/or conclusions.
Note 2: All the tests were performed on the model HM-G01E.

2.4 TEST OPERATION MODES

Mode No.	Description of the modes
1	5GHz Wi-Fi fixed frequency transmitting
2	5GHz Wi-Fi receiving
3	5GHz Wi-Fi work as normally

2.5 LOCAL SUPPORTIVE

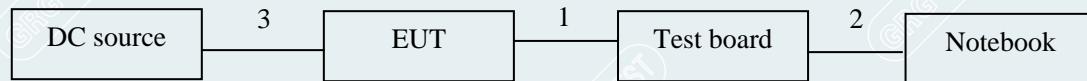
Name of equipment	Manufacturer	Model	Serial number	Note
Notebook	LENOVO	TianYi 310-14ISK	MP18DLC6	/
Test board	/	/	/	/
Adapter	Jian Aohai	A70-050200U-EU1	/	/
PoE Adapter	UE	PoE35-54A	/	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	Serial cable	1	No	0	0.3m
2	USB-MINI cable	1	Yes	0	1.0m
3	USB-C cable	1	Yes	0	0.8m
4	RJ45 cable	1	No	0	1.5m

Note: ⁽¹⁾The notebook is just used to produce fixed frequency transmitting.

2.6 CONFIGURATION OF SYSTEM UNDER TEST

For Equivalent isotropically radiated power & Duty cycle & Permitted range of operating frequencies & Blocking or desensitization



For Unwanted emissions in the spurious domain & Spurious Emissions for RX



Test software:

Software version	Test level
QCOM_1.0	IEEE 802.11a: 46 IEEE 802.11n HT20: 46 IEEE 802.11n HT40: 42 IEEE 802.11ac VHT20: 46 IEEE 802.11ac VHT40: 42 IEEE 802.11ac VHT80: 40

Channel List

Mode	Channel	Frequency (MHz)	Mode	Channel	Frequency (MHz)	Mode	Channel	Frequency (MHz)
IEEE 802.11a	149	5745	IEEE 802.11n HT20	149	5745	IEEE 802.11ac VHT20	149	5745
	153	5765		153	5765		153	5765
	157	5785		157	5785		157	5785
	161	5805		161	5805		161	5805
	165	5825		165	5825		165	5825

Mode	Channel	Frequency (MHz)	Mode	Channel	Frequency (MHz)	Mode	Channel	Frequency (MHz)
IEEE 802.11n HT40	151	5755	IEEE 802.11ac VHT40	151	5755	IEEE 802.11ac VHT80	155	5775
	159	5795		159	5795			

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3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG METROLOGY & TEST GROUP CO., LTD.

Add : No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District
Shenzhen, 518110, People's Republic of China

P.C. : 518110

Tel : 0755-61180008

Fax : 0755-61180008

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

China	CNAS(L0446)
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Copies of granted accreditation certificates are available for downloading from our web site,
<http://www.grgtest.com>

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3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Uncertainty
RF frequency	6.0×10^{-6}
RF power conducted	0.78 dB
Occupied channel bandwidth	0.40 dB
Unwanted emission, conducted	0.68 dB
Humidity	6.0 %
Temperature	2.0°C

Measurement	Frequency	Uncertainty
Radiated Emission	25MHz~200MHz	4.0dB
	200MHz~1000MHz	4.1dB
	1GHz~18GHz	4.9dB
	18GHz~40GHz	5.3dB
Radiated Emission	25MHz~200MHz	3.9dB
	200MHz~1000MHz	4.2dB
	1GHz~18GHz	5.0dB
	18GHz~40GHz	5.2dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

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3.4 LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Equivalent isotropically radiated power & Permitted range of operating frequencies				
Automatic power measuring unit	TONSCEND	JS0806-2	21B8060365	2024-11-07
Programmable constant temperature and humidity test chamber	FC	FPHC-23AW-40	FD202306015	2024-09-10
Spectrum Analyzer	R&S	FSW43	102072	2024-07-09
DC source	KEYSIGHT	E36131A	MY59001135	2024-09-22
BT/Wi-Fi System	Tonscend	JS1120-3		
Duty cycle				
Spectrum Analyzer	R&S	FSW43	102072	2024-07-09
Automatic power measuring	TONSCEND	JS0806-2	21B8060365	2024-11-07
DC source	KEYSIGHT	E36131A	MY59001135	2024-09-22
BT/Wi-Fi System	Tonscend	JS1120-3		
Blocking or desensitization				
Signal Generator	R&S	SMB100A	1406.6000k03-1821 90-G2	2024-10-13
Wideband radio Communication Tester	R&S	CMW500	144611-nC	2024-04-16
DC source	KEYSIGHT	E36131A	MY59001135	2024-09-22
Test SW	Tonscend	JS1120-3		
Unwanted emissions in the spurious domain & Spurious Emissions for RX				
Bi-log Antenna	Schwarzbeck	VULB9163	01279	2024-03-05
Horn Antenna	Schwarzbeck	BBHA9120D	02499	2024-08-26
Horn Antenna	Schwarzbeck	BBHA9170	01143	2024-09-18
Amplifier	Tonscend	TAP037030	AP20E8060081	2024-04-16
Amplifier	Tonscend	TAP01018048	AP20E8060076	2024-04-16
Amplifier	Tonscend	TAP9E6343	AP20E806065	2024-04-16
Amplifier	Tonscend	TAP184050	AP20E806070	2024-04-11
Spectrum Analyzer	KEYSIGHT	N9010A	MY55370330	2024-09-08

Spectrum Analyzer	R&S	FSV3044	101184	2024-08-11
Test S/W	Tonscend	JS36-RSE/5.0.0.1		

Note: The calibration interval of the above test instruments is 12 months.

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4. TRANSMITTER REQUIREMENTS

4.1 EQUIVALENT ISOTROPICALLY RADIATED POWER

4.1.1 LIMITS

Table 2: Maximum radiated peak power (e.i.r.p.)

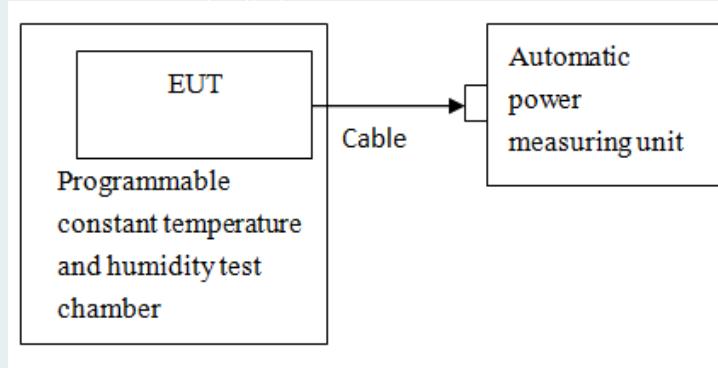
Entry	Frequency Bands	Power	Application	Notes
1	2 400 MHz to 2 483,5 MHz	10 mW e.i.r.p.	Non-specific short range devices	
2	2 400 MHz to 2 483,5 MHz	25 mW e.i.r.p.	Radiodetermination devices	
3	(a) 2 446 MHz to 2 454 MHz	500 mW e.i.r.p.	Radio Frequency Identification (RFID) devices	See also table 4 and Annex G
4	(b) 2 446 MHz to 2 454 MHz	4 W e.i.r.p.	Radio Frequency Identification (RFID) devices	See also table 4 and Annex G
5	5 725 MHz to 5 875 MHz	25 mW e.i.r.p.	Non-specific short range devices	
6	9 200 MHz to 9 500 MHz	25 mW e.i.r.p.	Radiodetermination devices	
7	9 500 MHz to 9 975 MHz	25 mW e.i.r.p.	Radiodetermination devices	
8	10,5 GHz to 10,6 GHz	500 mW e.i.r.p.	Radiodetermination devices	
9	13,4 GHz to 14,0 GHz	25 mW e.i.r.p.	Radiodetermination devices	
10	17,1 GHz to 17,3 GHz	400 mW e.i.r.p.	Radiodetermination devices	See Annex H
11	24,00 GHz to 24,25 GHz	100 mW e.i.r.p.	Non-specific short range devices and radiodetermination devices	

NOTE: The spectrum ranges in some entries are not harmonised throughout all EU territory, specifically entries 4, 9, and 11 have been identified as such. Implementers are cautioned to refer to CEPT/ERC Recommendation 70-03 [i.2] as well as current National Radio plans to verify acceptance within intended regions of use.

4.1.2 TEST PROCEDURE

- Test requirement: ETSI EN 300 440 clause 4.2.2.1
- Test Method: ETSI EN 300 440 clause 4.2.2.3
- Status: Keep EUT on transmitting mode by the software provided by manufacturer.
- Pretest the EUT at different transmission rate and report show the worst case data.
- Test channel: IEEE 802.11a/n HT20/ac VHT20 mode :5745 MHz, 5825 MHz;
IEEE 802.11n HT40/ac VHT40 mode :5755 MHz, 5795 MHz;
IEEE 802.11ac VHT80 mode :5775 MHz
- Test condition: These measurements shall be performed under both normal and extreme test conditions.

4.1.3 TEST SETUP



----- The following blanks -----

4.1.4 TEST RESULTS

Test environment: Normal condition: 26.8°C/51% RH/101.0kPa

Extreme test conditions:	Minimum Temp:	-10°C	Minimum Voltage:	DC 4.5V
	Maximum Temp:	+50°C	Normal Voltage:	DC 5V
			Maximum Voltage:	DC 5.5V

Test Engineer: Huang Tianmei

Test Date (yy-mm-dd): 2023-11-22

Test Condition	Test Mode	Antenna	Freq[MHz]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
NTNV	IEEE 802.11a	Ant4	5745	12.47	13.98	PASS
		Ant4	5785	12.54	13.98	PASS
		Ant4	5825	12.20	13.98	PASS
	IEEE 802.11n HT20	Ant4	5745	12.15	13.98	PASS
		Ant4	5785	12.46	13.98	PASS
		Ant4	5825	12.09	13.98	PASS
	IEEE 802.11n HT40	Ant4	5755	11.91	13.98	PASS
		Ant4	5795	11.89	13.98	PASS
	IEEE 802.11ac VHT20	Ant4	5745	12.14	13.98	PASS
		Ant4	5785	12.47	13.98	PASS
		Ant4	5825	12.05	13.98	PASS
	IEEE 802.11ac VHT40	Ant4	5755	11.36	13.98	PASS
		Ant4	5795	11.84	13.98	PASS
	IEEE 802.11ac VHT80	Ant4	5775	9.95	13.98	PASS

Test Condition	Test Mode	Antenna	Freq[MHz]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
LTLV	IEEE 802.11a	Ant4	5745	12.50	13.98	PASS
		Ant4	5785	12.54	13.98	PASS
		Ant4	5825	12.22	13.98	PASS
	IEEE 802.11n HT20	Ant4	5745	12.13	13.98	PASS
		Ant4	5785	12.48	13.98	PASS
		Ant4	5825	12.13	13.98	PASS
	IEEE 802.11n HT40	Ant4	5755	12.01	13.98	PASS
		Ant4	5795	11.99	13.98	PASS
	IEEE 802.11ac VHT20	Ant4	5745	12.36	13.98	PASS
		Ant4	5785	12.49	13.98	PASS
		Ant4	5825	12.04	13.98	PASS
	IEEE 802.11ac VHT40	Ant4	5755	11.51	13.98	PASS
		Ant4	5795	11.82	13.98	PASS
	IEEE 802.11ac VHT80	Ant4	5775	10.00	13.98	PASS

Test Condition	Test Mode	Antenna	Freq[MHz]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
LTHV	IEEE 802.11a	Ant4	5745	12.49	13.98	PASS
		Ant4	5785	12.52	13.98	PASS
		Ant4	5825	12.18	13.98	PASS
	IEEE 802.11n HT20	Ant4	5745	12.10	13.98	PASS
		Ant4	5785	12.47	13.98	PASS
		Ant4	5825	12.11	13.98	PASS
	IEEE 802.11n HT40	Ant4	5755	11.95	13.98	PASS
		Ant4	5795	11.95	13.98	PASS
	IEEE 802.11ac VHT20	Ant4	5745	12.16	13.98	PASS
		Ant4	5785	12.46	13.98	PASS
		Ant4	5825	11.99	13.98	PASS
	IEEE 802.11ac VHT40	Ant4	5755	11.44	13.98	PASS
		Ant4	5795	11.81	13.98	PASS
	IEEE 802.11ac VHT80	Ant4	5775	10.05	13.98	PASS

Test Condition	Test Mode	Antenna	Freq[MHz]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
HTLV	IEEE 802.11a	Ant4	5745	12.43	13.98	PASS
		Ant4	5785	12.50	13.98	PASS
		Ant4	5825	12.22	13.98	PASS
	IEEE 802.11n HT20	Ant4	5745	12.15	13.98	PASS
		Ant4	5785	12.48	13.98	PASS
		Ant4	5825	12.10	13.98	PASS
	IEEE 802.11n HT40	Ant4	5755	11.86	13.98	PASS
		Ant4	5795	11.99	13.98	PASS
	IEEE 802.11ac VHT20	Ant4	5745	12.15	13.98	PASS
		Ant4	5785	12.46	13.98	PASS
		Ant4	5825	12.06	13.98	PASS
	IEEE 802.11ac VHT40	Ant4	5755	11.47	13.98	PASS
		Ant4	5795	11.82	13.98	PASS
	IEEE 802.11ac VHT80	Ant4	5775	9.96	13.98	PASS

Test Condition	Test Mode	Antenna	Freq[MHz]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
HTHV	IEEE 802.11a	Ant4	5745	12.42	13.98	PASS
		Ant4	5785	12.50	13.98	PASS
		Ant4	5825	12.27	13.98	PASS
	IEEE 802.11n HT20	Ant4	5745	12.21	13.98	PASS
		Ant4	5785	12.48	13.98	PASS
		Ant4	5825	12.11	13.98	PASS
	IEEE 802.11n HT40	Ant4	5755	11.81	13.98	PASS
		Ant4	5795	11.95	13.98	PASS
	IEEE 802.11ac VHT20	Ant4	5745	12.15	13.98	PASS
		Ant4	5785	12.51	13.98	PASS
		Ant4	5825	12.02	13.98	PASS
	IEEE 802.11ac VHT40	Ant4	5755	11.33	13.98	PASS
		Ant4	5795	11.83	13.98	PASS
	IEEE 802.11ac VHT80	Ant4	5775	9.95	13.98	PASS

4.2 PERMITTED RANGE OF OPERATING FREQUENCIES

4.2.1. LIMITS

ETSI EN300 440 clause 4.2.3.5
$f_L \geq 5725\text{MHz}$ and $f_H \leq 5875\text{MHz}$

4.2.2. TEST PROCEDURE

Test requirement:

ETSI EN 300 440 clause 4.2.3

Test Method:

ETSI EN 300 440 clause 4.2.3.3

Status:

Keep EUT on transmitting mode by the software provided by manufacturer.

Pretest the EUT at different transmission rate and report show the worst case data.

Test channel:

IEEE 802.11a/n HT20/ac VHT20 mode :5745 MHz, 5825 MHz;

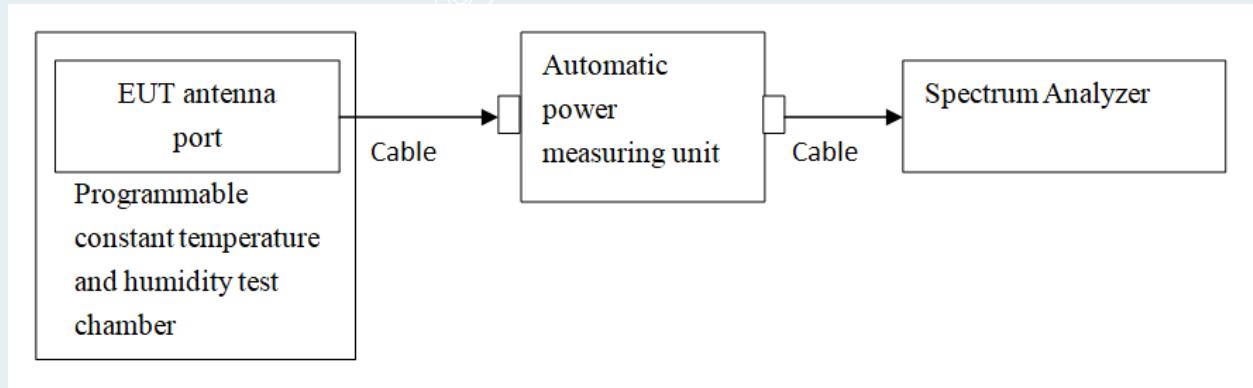
IEEE 802.11n HT40/ac VHT40 mode :5755 MHz, 5795 MHz;

IEEE 802.11ac VHT80 mode :5775 MHz

Test condition:

These measurements shall be performed under both normal and extreme test conditions.

4.2.3. TEST SETUP



4.2.4. TEST RESULTS

Test environment: Normal condition: 26.8°C/51% RH/101.0kPa

Extreme test conditions:	Minimum Temp:	-10°C	Minimum Voltage:	DC 4.5V
	Maximum Temp:	+50°C	Normal Voltage:	DC 5V
			Maximum Voltage:	DC 5.5V

Test Engineer: Huang Tianmei

Test Date (yy-mm-dd): 2023-11-22

Type: IEEE 802.11a

Test Conditions						Frequency range (MHz)					
						f_L	5745	f_H	5825		
T nom	(°C)	26.8	V_{nom}	(V)	5	5736.20					
T min	(°C)	-10	V max	(V)	5.5	5736.19					
			V min	(V)	4.5	5736.21					
T max	(°C)	+50	V max	(V)	5.5	5736.20					
Min. f_L / Max. f_H Band Edges						5736.19					
Limits						$f_L \geq 5725$		$f_H \leq 5875$			
Result						Complies					

Type: IEEE 802.11n HT20

Test Conditions						Frequency range (MHz)					
						f_L	5745	f_H	5825		
T nom	(°C)	26.8	V_{nom}	(V)	5	5735.62					
T min	(°C)	-10	V max	(V)	5.5	5735.62					
			V min	(V)	4.5	5735.66					
T max	(°C)	+50	V max	(V)	5.5	5735.62					
Min. f_L / Max. f_H Band Edges						5735.62					
Limits						$f_L \geq 5725$ MHz		$f_H \leq 5875$ MHz			
Result						Complies					

Type: IEEE 802.11n HT40

Test Conditions						Frequency range (MHz)					
						f_L	5755	f_H	5795		
T nom	(°C)	26.8	V nom	(V)	5	5736.62		5813.50			
T min	(°C)	-10	V max	(V)	5.5	5736.52		5813.50			
			V min	(V)	4.5	5736.47		5813.49			
T max	(°C)	+50	V max	(V)	5.5	5736.51		5813.48			
			V min	(V)	4.5	5736.50		5813.50			
Min. f_L / Max. f_H Band Edges						5736.47		5813.50			
Limits						$f_L \geq 5725$ MHz		$f_H \leq 5875$ MHz			
Result						Complies					

Type: IEEE 802.11ac VHT20

Test Conditions						Frequency range (MHz)					
						f_L	5745	f_H	5825		
T nom	(°C)	26.8	V nom	(V)	5	5735.67		5834.18			
T min	(°C)	-10	V max	(V)	5.5	5735.67		5834.18			
			V min	(V)	4.5	5735.65		5834.18			
T max	(°C)	+50	V max	(V)	5.5	5735.64		5834.18			
			V min	(V)	4.5	5735.66		5834.18			
Min. f_L / Max. f_H Band Edges						5735.64		5834.18			
Limits						$f_L \geq 5725$ MHz		$f_H \leq 5875$ MHz			
Result						Complies					

Type: IEEE 802.11ac VHT40

Test Conditions						Frequency range (MHz)					
						f_L	5755	f_H	5795		
T nom	(°C)	26.8	V nom	(V)	5	5736.46		5813.34			
T min	(°C)	-10	V max	(V)	5.5	5736.50		5813.34			
			V min	(V)	4.5	5736.47		5813.32			
T max	(°C)	+50	V max	(V)	5.5	5736.46		5813.34			
			V min	(V)	4.5	5736.47		5813.34			
Min. f_L / Max. f_H Band Edges						5736.46		5813.34			
Limits						$f_L \geq 5725$ MHz		$f_H \leq 5875$ MHz			
Result						Complies					

Type: IEEE 802.11ac VHT80

Test Conditions						Frequency range (MHz)					
						f_L	5775	f_H	5775		
T nom	(°C)	26.8	V_{nom}	(V)	5	5736.68		5813.26			
T min	(°C)	-10	V max	(V)	5.5	5736.66		5813.26			
			V min	(V)	4.5	5736.66		5813.27			
T max	(°C)	+50	V max	(V)	5.5	5736.66		5813.27			
			V min	(V)	4.5	5736.66		5813.27			
Min. f_L / Max. f_H Band Edges						5736.66		5813.27			
Limits						$f_L \geq 5725$ MHz		$f_H \leq 5875$ MHz			
Result						Complies					

----- The following blanks -----

4.3 DUTY CYCLE

4.3.1. LIMITS

Table 4: Duty cycle limits

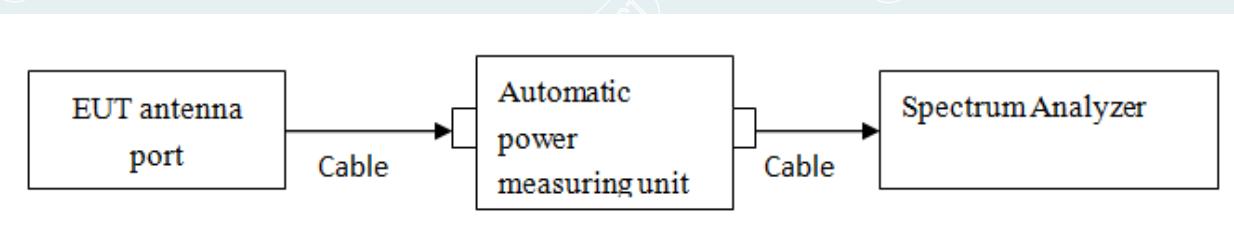
Frequency Band	Duty cycle	Application	Notes
2 400 MHz to 2 483,5 MHz	No Restriction	Generic use	
2 400 MHz to 2 483,5 MHz	No Restriction	Radiodetermination	
(a) 2 446 MHz to 2 454 MHz	No Restriction	RFID	Limits shown in Annex G shall apply
(b) 2 446 MHz to 2 454 MHz	≤ 15 %	RFID	Limits shown in Annex G shall apply
5 725 MHz to 5 875 MHz	No Restriction	Generic use	
9 200 MHz to 9 500 MHz	No Restriction	Radiodetermination	
9 500 MHz to 9 975 MHz	No Restriction	Radiodetermination	
10,5 GHz to 10,6 GHz	No Restriction	Radiodetermination	
13,4 GHz to 14,0 GHz	No Restriction	Radiodetermination	
17,1 GHz to 17,3 GHz	DAA or equivalent techniques	Radiodetermination, limited to GBSAR detecting and movement and alert applications	Limits shown in Annex I shall apply
24,00 GHz to 24,25 GHz	No Restriction	Generic use and for radiodetermination	

NOTE: The spectrum ranges in some entries are not harmonised throughout all EU territory, specifically entries 4, 9, and 11 have been identified as such. Implementers are cautioned to refer to CEPT/ERC Recommendation 70-03 [i.2] as well as current National Radio plans to verify acceptance within intended regions of use.

4.3.2. TEST PROCEDURE

- Test requirement: ETSI EN 300 440 clause 4.2.5
- Test Method: ETSI EN 300 440 clause 4.2.5.3
- Status: Keep EUT in normal working mode
- Test channel: IEEE 802.11a/n HT20/ac VHT20 mode :5745 MHz, 5785 MHz ,5825 MHz;
IEEE 802.11n HT40/ac VHT40 mode :5755 MHz, 5795 MHz;
IEEE 802.11ac VHT80 mode :5775 MHz
- Test condition: These measurements shall be performed under normal test conditions.
- Remark /

4.3.3. TEST SETUP



4.3.4. TEST RESULTS

Test environment: Normal condition: 26.8°C/51% RH/101.0kPa

Extreme test conditions: Minimum Temp: -10°C
Maximum Temp: +50°C

Test Engineer: Huang Tianmei

Test Date (yy-mm-dd): 2023-11-22

Test Mode	Antenna	Freq[MHz]	Duty Cycle [%]	Observation Time
IEEE 802.11a	Ant4	5745	92.79	1H
	Ant4	5785	95.81	1H
	Ant4	5825	92.38	1H
IEEE 802.11n HT20	Ant4	5745	97.96	1H
	Ant4	5785	94.12	1H
	Ant4	5825	93.20	1H
IEEE 802.11n HT40	Ant4	5755	87.85	1H
	Ant4	5795	91.26	1H
IEEE 802.11ac VHT20	Ant4	5745	97.47	1H
	Ant4	5785	94.61	1H
	Ant4	5825	95.07	1H
IEEE 802.11ac VHT40	Ant4	5755	90.48	1H
	Ant4	5795	94.06	1H
IEEE 802.11ac VHT80	Ant4	5775	88.46	1H

----- The following blanks -----

4.4 UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

4.4.1. LIMITS

Transmitter limits for radiated spurious emissions					
Frequency ranges	47MHz to 74MHz	87.5MHz to 108MHz	Other frequencies ≤1000MHz	frequencies >1000MHz	
State	47.5MHz to 108MHz 174MHz to 230MHz 470MHz to 862MHz				
Operating	-54 dBm	4 nW	-36 dBm	250 nW	-30 dBm
Standby	-57 dBm	2 nW	-57 dBm	2 nW	-47 dBm
					20 nW

4.4.2. TEST PROCEDURE

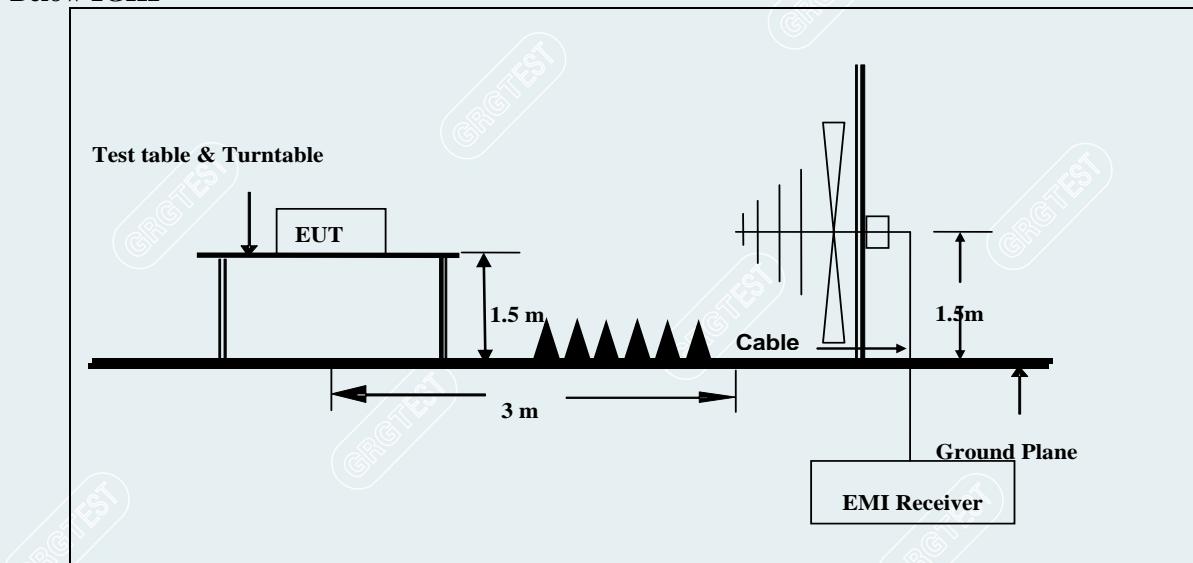
Test channel: IEEE 802.11a/n HT20/ac VHT20 mode :5745 MHz, 5825 MHz;
 IEEE 802.11n HT40/ac VHT40 mode :5755 MHz, 5795 MHz;
 IEEE 802.11ac VHT80 mode :5775 MHz

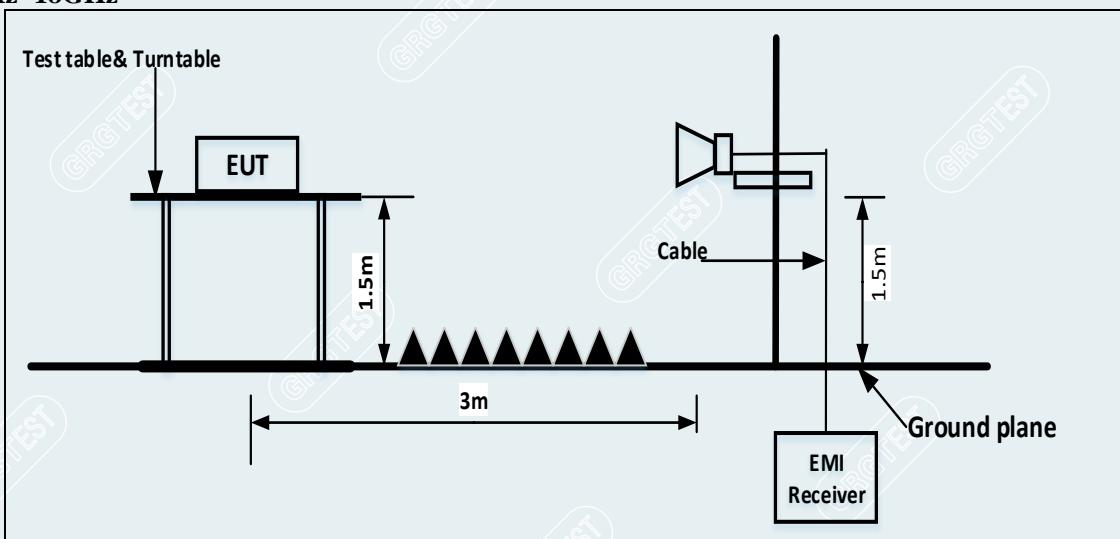
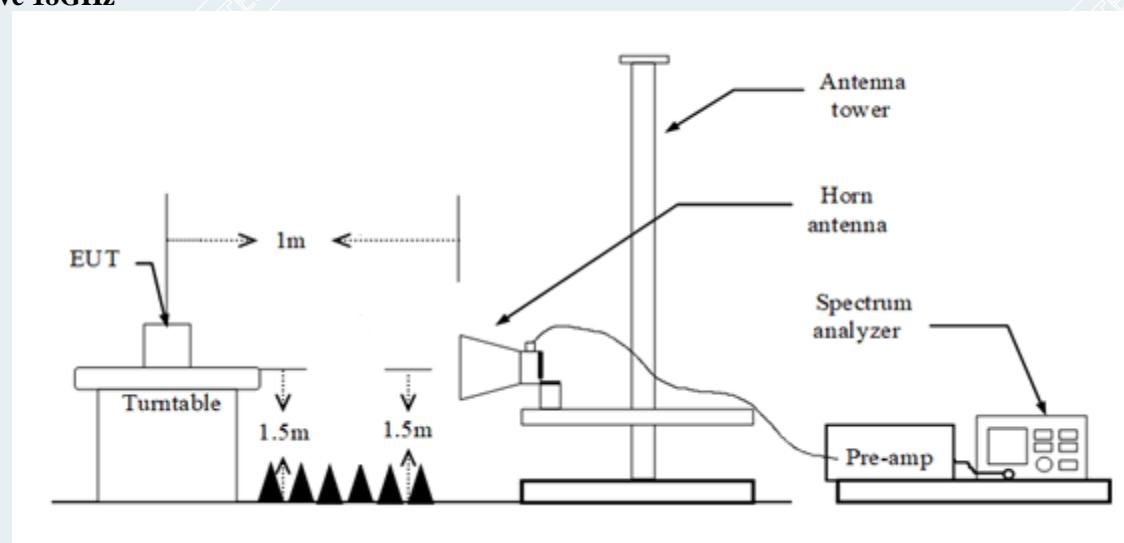
Test condition: Normal test conditions.

Test procedure: ETSI EN 300440 clause 4.2.4.3.3 and annex E

4.4.3. TEST SETUP

Below 1GHz



1GHz -18GHz**Above 18GHz****4.4.4. DATA SAMPLE**

Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
XXX	-49.71	-57.90	-30.00	27.90	-8.19	PK	Horizontal

Frequency (MHz)

= Emission frequency in MHz

Reading (dBm)

= Uncorrected Analyzer / Receiver reading

Level (dBm)

= Reading (dBm) + Factor (dB)

Limit (dBm)

= Limit stated in standard

Margin (dB)

= Limit(dBm)– Level (dBm)

PK

= Peak

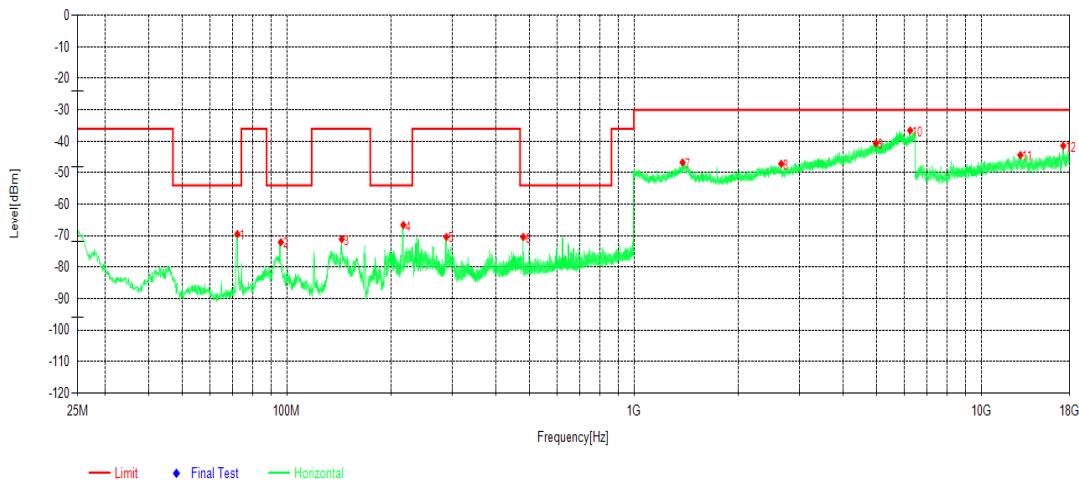
4.4.5. TEST RESULTS

25MHz-18GHz

Pre-scan all modes, the worst power supply is AC 230/50Hz (DC 5V/2A power by Adapter), in the two power supply modes, 1GHz-18GHz data only record the worst power supply mode (DC 5V/2A power by Adapter) and 25MHz-1GHz records the data of two power supply modes (DC 5V/2A power by Adapter & DC 48V/0.27A power by PoE Adapter) in this report.

Power supply: AC 230V/50Hz(DC 5V/2A power by Adapter)

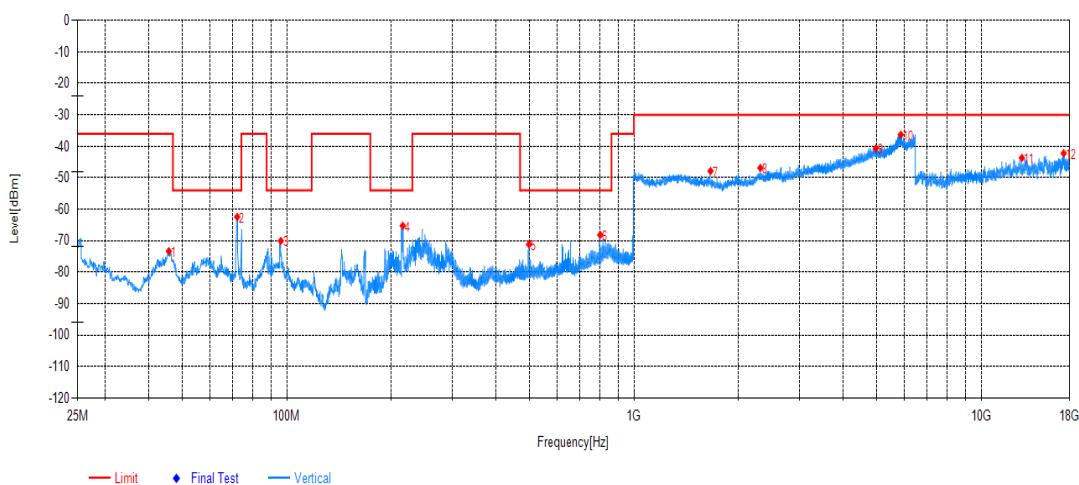
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11a 5745MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C/42% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	72.0925	-47.88	-69.46	-54.00	15.46	-21.58	PK	Horizontal
2	96.175	-55.17	-72.03	-54.00	18.03	-16.86	PK	Horizontal
3	144.0475	-51.75	-71.09	-36.00	35.09	-19.34	PK	Horizontal
4	216.7825	-49.28	-66.58	-54.00	12.58	-17.30	PK	Horizontal
5	288.25	-56.25	-70.38	-36.00	34.38	-14.13	PK	Horizontal
6	480.0325	-59.06	-70.39	-54.00	16.39	-11.33	PK	Horizontal
7	1381.7	-62.23	-46.71	-30.00	16.71	15.52	PK	Horizontal
8	2657.7	-63.26	-47.12	-30.00	17.12	16.14	PK	Horizontal
9	4979.25	-68.01	-40.66	-30.00	10.66	27.35	PK	Horizontal
10	6249.2	-66.98	-36.54	-30.00	6.54	30.44	PK	Horizontal
11	12977.95	-60.59	-44.37	-30.00	14.37	16.22	PK	Horizontal
12	17250.2	-62.09	-41.42	-30.00	11.42	20.67	PK	Horizontal

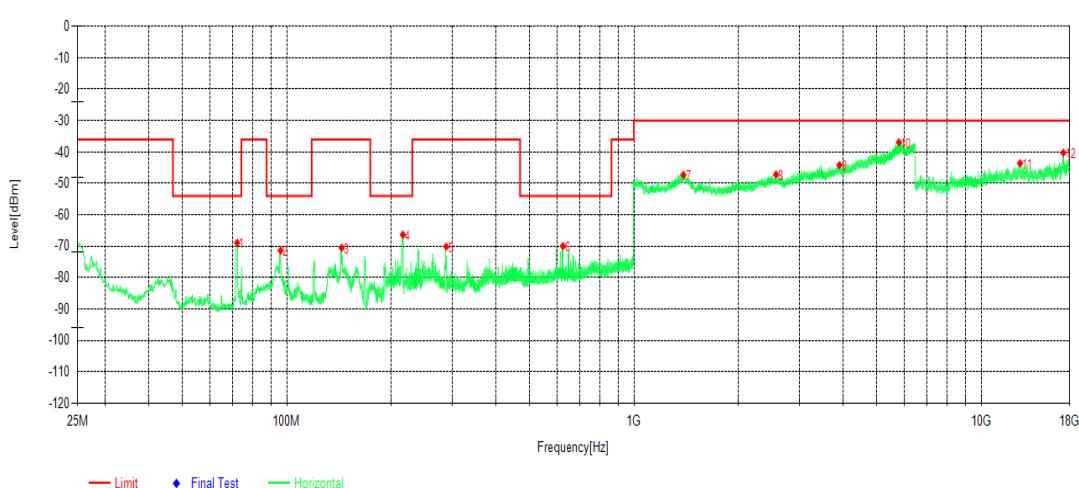
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11a 5745MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C/42% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	45.7675	-59.65	-73.32	-36.00	37.32	-13.67	PK	Vertical
2	71.995	-43.76	-62.44	-54.00	8.44	-18.68	PK	Vertical
3	96.175	-50.73	-70.03	-54.00	16.03	-19.30	PK	Vertical
4	215.905	-47.69	-65.21	-54.00	11.21	-17.52	PK	Vertical
5	498.5575	-61.52	-71.16	-54.00	17.16	-9.64	PK	Vertical
6	800.0275	-62.72	-68.13	-54.00	14.13	-5.41	PK	Vertical
7	1662.2	-61.04	-47.82	-30.00	17.82	13.22	PK	Vertical
8	2313.95	-62.69	-46.84	-30.00	16.84	15.85	PK	Vertical
9	4978.15	-68.11	-40.63	-30.00	10.63	27.48	PK	Vertical
10	5870.8	-67.92	-36.28	-30.00	6.28	31.64	PK	Vertical
11	13115.95	-58.73	-43.67	-30.00	13.67	15.06	PK	Vertical
12	17296.2	-61.97	-42.20	-30.00	12.20	19.77	PK	Vertical

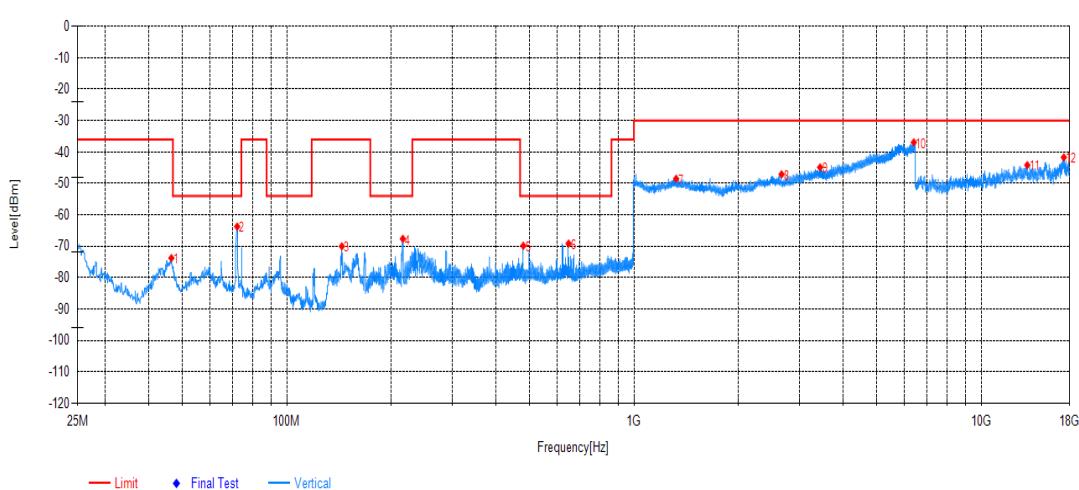
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11a 5825MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C / 42% RH / 101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.995	-47.31	-68.87	-54.00	14.87	-21.56	PK	Horizontal
2	96.0775	-54.47	-71.33	-54.00	17.33	-16.86	PK	Horizontal
3	144.0475	-51.14	-70.48	-36.00	34.48	-19.34	PK	Horizontal
4	216.0025	-48.96	-66.28	-54.00	12.28	-17.32	PK	Horizontal
5	287.9575	-55.96	-70.10	-36.00	34.10	-14.14	PK	Horizontal
6	624.5275	-61.78	-69.94	-54.00	15.94	-8.16	PK	Horizontal
7	1388.85	-62.97	-47.25	-30.00	17.25	15.72	PK	Horizontal
8	2566.95	-63.46	-47.20	-30.00	17.20	16.26	PK	Horizontal
9	3910.6	-66.29	-44.17	-30.00	14.17	22.12	PK	Horizontal
10	5796.55	-67.85	-36.95	-30.00	6.95	30.90	PK	Horizontal
11	12953.8	-60.07	-43.54	-30.00	13.54	16.53	PK	Horizontal
12	17261.7	-60.85	-40.23	-30.00	10.23	20.62	PK	Horizontal

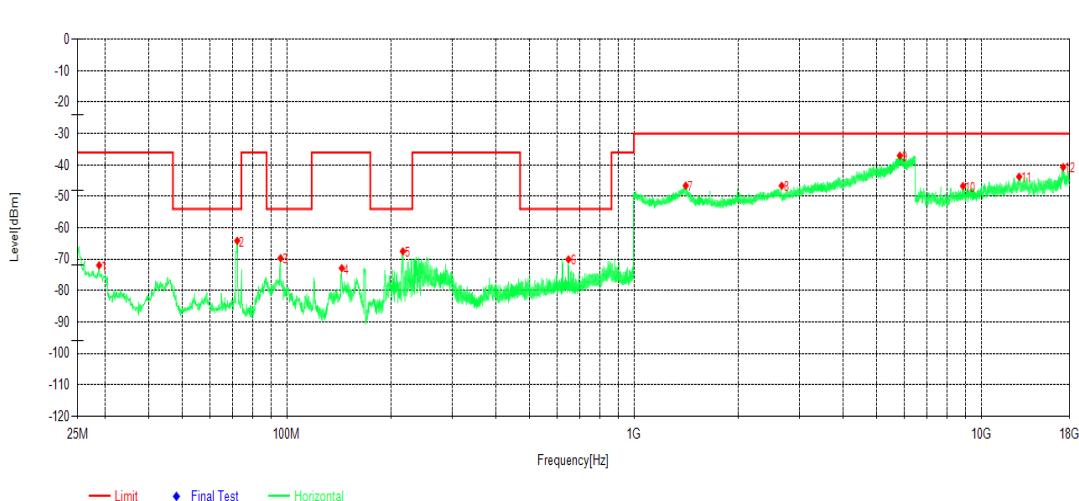
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11a 5825MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C / 42% RH / 101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	46.5475	-60.15	-73.77	-36.00	37.77	-13.62	PK	Vertical
2	71.995	-45.02	-63.70	-54.00	9.70	-18.68	PK	Vertical
3	144.145	-50.73	-70.00	-36.00	34.00	-19.27	PK	Vertical
4	216.0025	-50.08	-67.60	-54.00	13.60	-17.52	PK	Vertical
5	480.0325	-58.56	-69.84	-54.00	15.84	-11.28	PK	Vertical
6	648.22	-61.90	-69.14	-54.00	15.14	-7.24	PK	Vertical
7	1323.4	-62.26	-48.50	-30.00	18.50	13.76	PK	Vertical
8	2663.2	-63.25	-47.11	-30.00	17.11	16.14	PK	Vertical
9	3439.8	-64.82	-44.88	-30.00	14.88	19.94	PK	Vertical
10	6401	-67.69	-36.92	-30.00	6.92	30.77	PK	Vertical
11	13588.6	-60.69	-44.16	-30.00	14.16	16.53	PK	Vertical
12	17322.65	-61.31	-41.70	-30.00	11.70	19.61	PK	Vertical

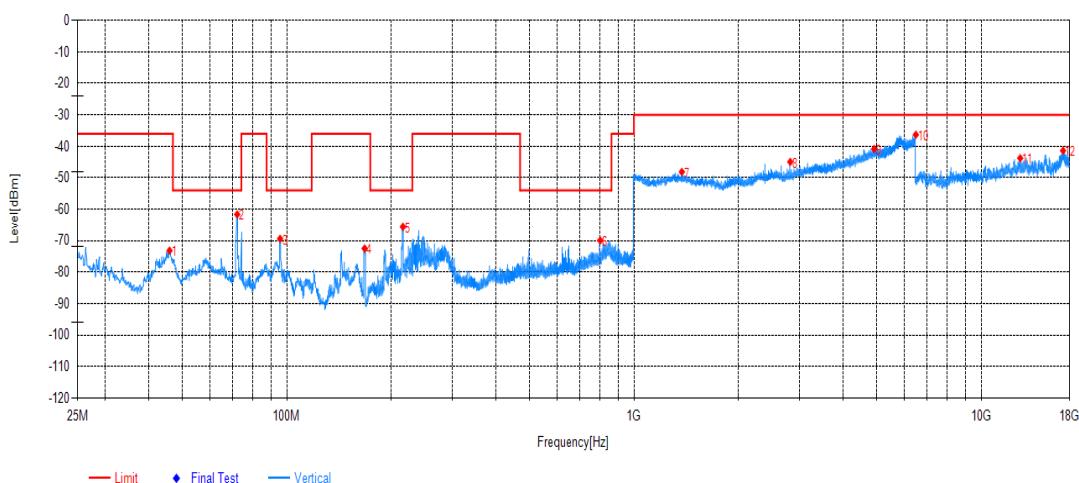
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Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11n HT20 5745MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C / 42% RH / 101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	28.8025	-56.88	-71.90	-36.00	35.90	-15.02	PK	Horizontal
2	71.995	-42.57	-64.13	-54.00	10.13	-21.56	PK	Horizontal
3	95.98	-52.77	-69.63	-54.00	15.63	-16.86	PK	Horizontal
4	144.0475	-53.49	-72.83	-36.00	36.83	-19.34	PK	Horizontal
5	216.0025	-50.16	-67.48	-54.00	13.48	-17.32	PK	Horizontal
6	648.3175	-62.33	-70.03	-54.00	16.03	-7.70	PK	Horizontal
7	1410.85	-62.24	-46.54	-30.00	16.54	15.70	PK	Horizontal
8	2664.85	-62.62	-46.60	-30.00	16.60	16.02	PK	Horizontal
9	5834.5	-68.11	-37.02	-30.00	7.02	31.09	PK	Horizontal
10	8869	-54.67	-46.67	-30.00	16.67	8.00	PK	Horizontal
11	12876.75	-58.95	-43.72	-30.00	13.72	15.23	PK	Horizontal
12	17243.3	-61.29	-40.64	-30.00	10.64	20.65	PK	Horizontal

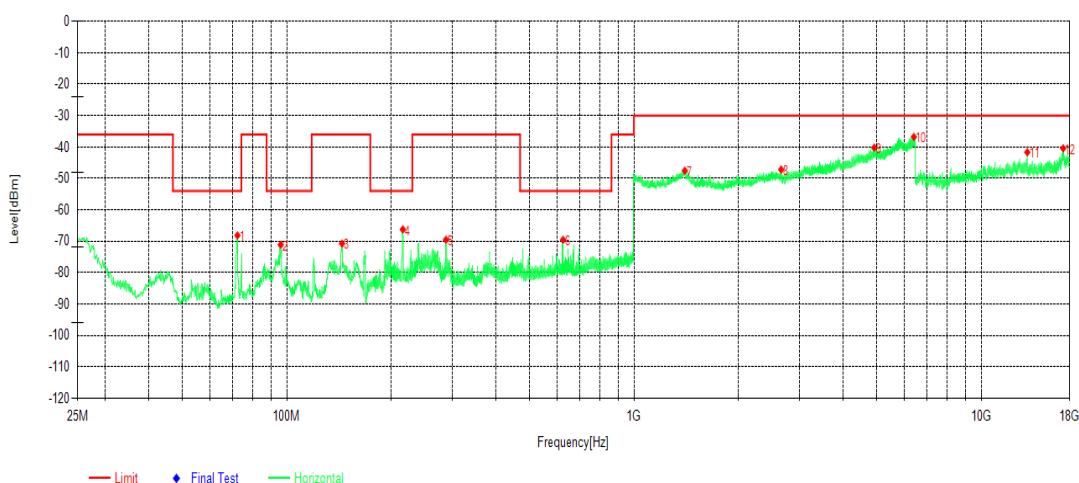
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Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11n HT20 5745MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C/42% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	45.9625	-59.47	-73.13	-36.00	37.13	-13.66	PK	Vertical
2	71.995	-42.94	-61.62	-54.00	7.62	-18.68	PK	Vertical
3	95.6875	-50.04	-69.36	-54.00	15.36	-19.32	PK	Vertical
4	167.6425	-54.57	-72.43	-36.00	36.43	-17.86	PK	Vertical
5	216.0025	-48.02	-65.54	-54.00	11.54	-17.52	PK	Vertical
6	800.0275	-64.47	-69.88	-54.00	15.88	-5.41	PK	Vertical
7	1374.55	-62.02	-48.14	-30.00	18.14	13.88	PK	Vertical
8	2820.5	-61.69	-44.93	-30.00	14.93	16.76	PK	Vertical
9	4922.6	-68.27	-40.82	-30.00	10.82	27.45	PK	Vertical
10	6486.8	-67.70	-36.31	-30.00	6.31	31.39	PK	Vertical
11	12967.6	-59.87	-43.74	-30.00	13.74	16.13	PK	Vertical
12	17223.75	-61.40	-41.36	-30.00	11.36	20.04	PK	Vertical

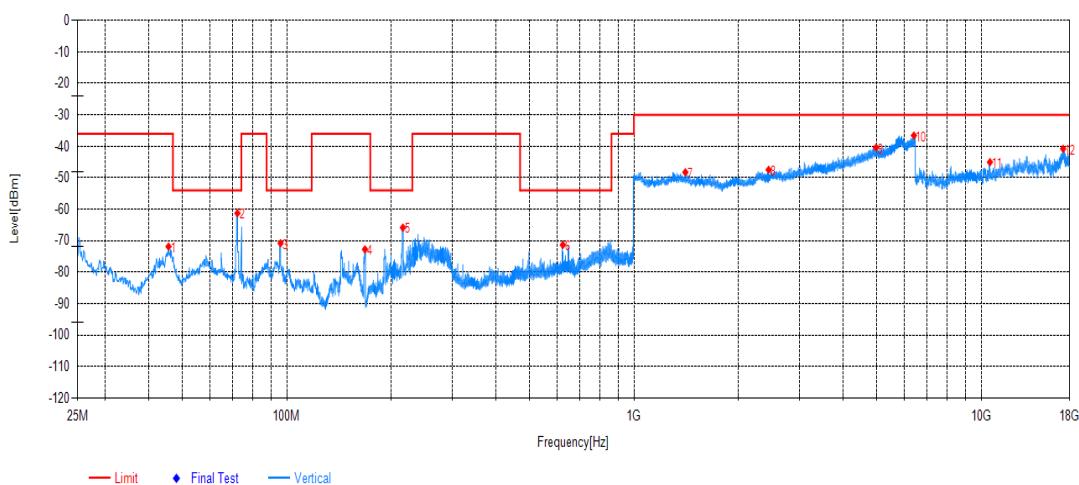
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Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11n HT20 5825MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C / 42% RH / 101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	72.0925	-46.56	-68.14	-54.00	14.14	-21.58	PK	Horizontal
2	96.0775	-54.27	-71.13	-54.00	17.13	-16.86	PK	Horizontal
3	144.2425	-51.34	-70.73	-36.00	34.73	-19.39	PK	Horizontal
4	216.0025	-48.89	-66.21	-54.00	12.21	-17.32	PK	Horizontal
5	287.47	-55.36	-69.51	-36.00	33.51	-14.15	PK	Horizontal
6	625.015	-61.41	-69.56	-54.00	15.56	-8.15	PK	Horizontal
7	1401.5	-63.53	-47.54	-30.00	17.54	15.99	PK	Horizontal
8	2656.05	-63.34	-47.17	-30.00	17.17	16.17	PK	Horizontal
9	4928.1	-67.54	-40.22	-30.00	10.22	27.32	PK	Horizontal
10	6403.2	-67.59	-36.76	-30.00	6.76	30.83	PK	Horizontal
11	13584	-58.31	-41.66	-30.00	11.66	16.65	PK	Horizontal
12	17243.3	-61.09	-40.44	-30.00	10.44	20.65	PK	Horizontal

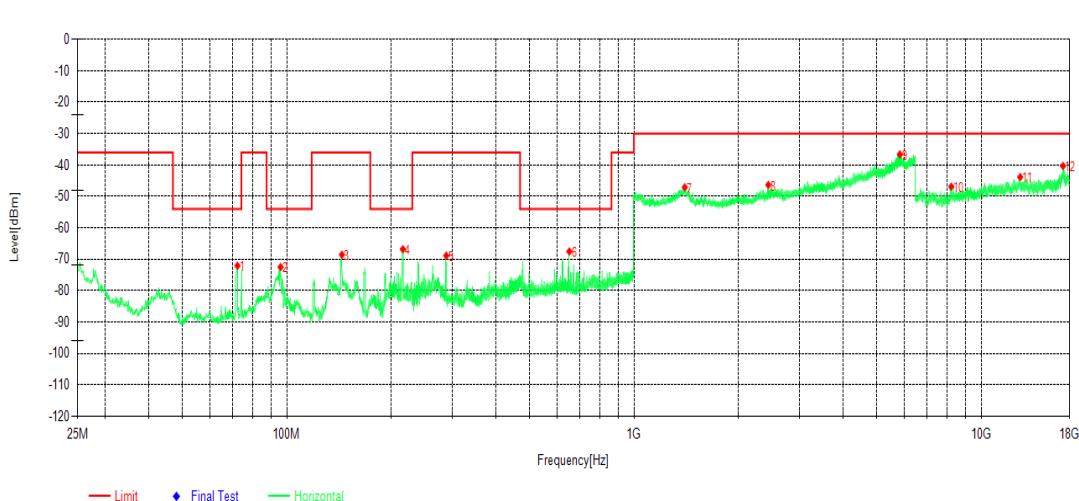
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11n HT20 5825MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C/42% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	45.67	-58.17	-71.84	-36.00	35.84	-13.67	PK	Vertical
2	72.0925	-42.53	-61.25	-54.00	7.25	-18.72	PK	Vertical
3	95.98	-51.46	-70.77	-54.00	16.77	-19.31	PK	Vertical
4	167.935	-54.86	-72.73	-36.00	36.73	-17.87	PK	Vertical
5	216.0025	-48.30	-65.82	-54.00	11.82	-17.52	PK	Vertical
6	624.1375	-63.25	-71.31	-54.00	17.31	-8.06	PK	Vertical
7	1407	-62.16	-48.24	-30.00	18.24	13.92	PK	Vertical
8	2444.85	-63.18	-47.46	-30.00	17.46	15.72	PK	Vertical
9	4982.55	-67.89	-40.42	-30.00	10.42	27.47	PK	Vertical
10	6404.85	-67.36	-36.56	-30.00	6.56	30.80	PK	Vertical
11	10608.95	-56.28	-45.02	-30.00	15.02	11.26	PK	Vertical
12	17243.3	-60.87	-40.81	-30.00	10.81	20.06	PK	Vertical

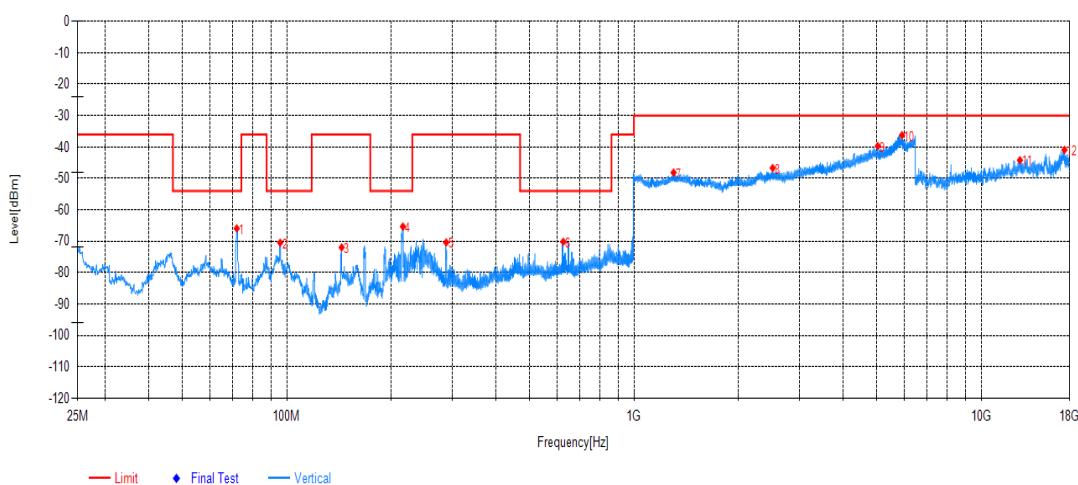
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11n HT40 5755MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C / 42% RH / 101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	72.0925	-50.47	-72.05	-54.00	18.05	-21.58	PK	Horizontal
2	95.98	-55.61	-72.47	-54.00	18.47	-16.86	PK	Horizontal
3	144.2425	-49.14	-68.53	-36.00	32.53	-19.39	PK	Horizontal
4	216.0025	-49.49	-66.81	-54.00	12.81	-17.32	PK	Horizontal
5	287.9575	-54.69	-68.83	-36.00	32.83	-14.14	PK	Horizontal
6	651.8275	-59.87	-67.49	-54.00	13.49	-7.62	PK	Horizontal
7	1402.05	-63.08	-47.10	-30.00	17.10	15.98	PK	Horizontal
8	2439.35	-61.94	-46.32	-30.00	16.32	15.62	PK	Horizontal
9	5836.15	-67.71	-36.61	-30.00	6.61	31.10	PK	Horizontal
10	8207.75	-54.85	-46.89	-30.00	16.89	7.96	PK	Horizontal
11	12965.3	-60.20	-43.82	-30.00	13.82	16.38	PK	Horizontal
12	17224.9	-60.85	-40.28	-30.00	10.28	20.57	PK	Horizontal

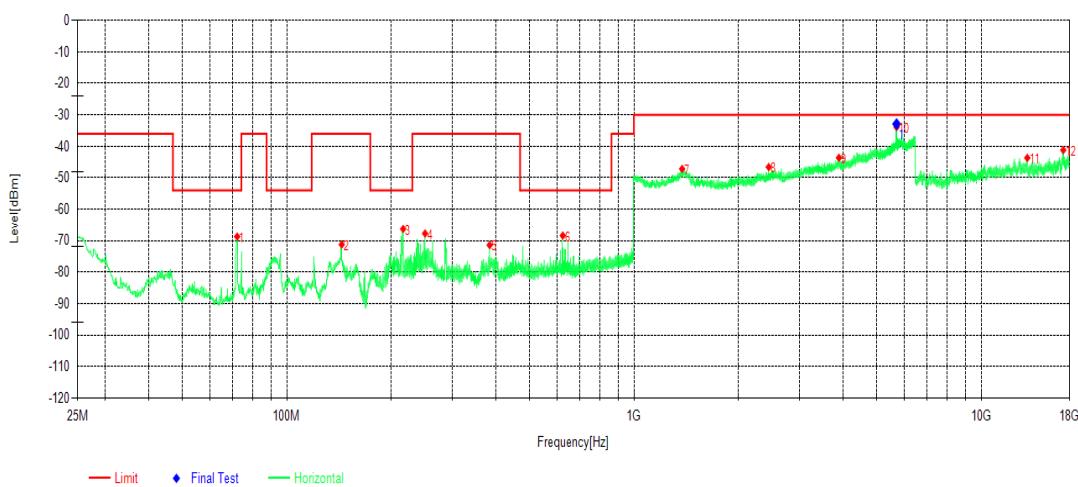
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11n HT40 5755MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C / 42% RH / 101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.8	-47.28	-65.89	-54.00	11.89	-18.61	PK	Vertical
2	95.785	-51.12	-70.44	-54.00	16.44	-19.32	PK	Vertical
3	143.95	-52.67	-71.96	-36.00	35.96	-19.29	PK	Vertical
4	216.1	-47.77	-65.29	-54.00	11.29	-17.52	PK	Vertical
5	287.9575	-55.82	-70.36	-36.00	34.36	-14.54	PK	Vertical
6	626.0875	-62.20	-70.17	-54.00	16.17	-7.97	PK	Vertical
7	1300.85	-61.86	-48.12	-30.00	18.12	13.74	PK	Vertical
8	2510.85	-62.91	-46.66	-30.00	16.66	16.25	PK	Vertical
9	5040.3	-67.21	-39.70	-30.00	9.70	27.51	PK	Vertical
10	5918.1	-67.62	-36.22	-30.00	6.22	31.40	PK	Vertical
11	12942.3	-60.38	-44.18	-30.00	14.18	16.20	PK	Vertical
12	17393.95	-60.97	-40.92	-30.00	10.92	20.05	PK	Vertical

Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11n HT40 5795MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C/42% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



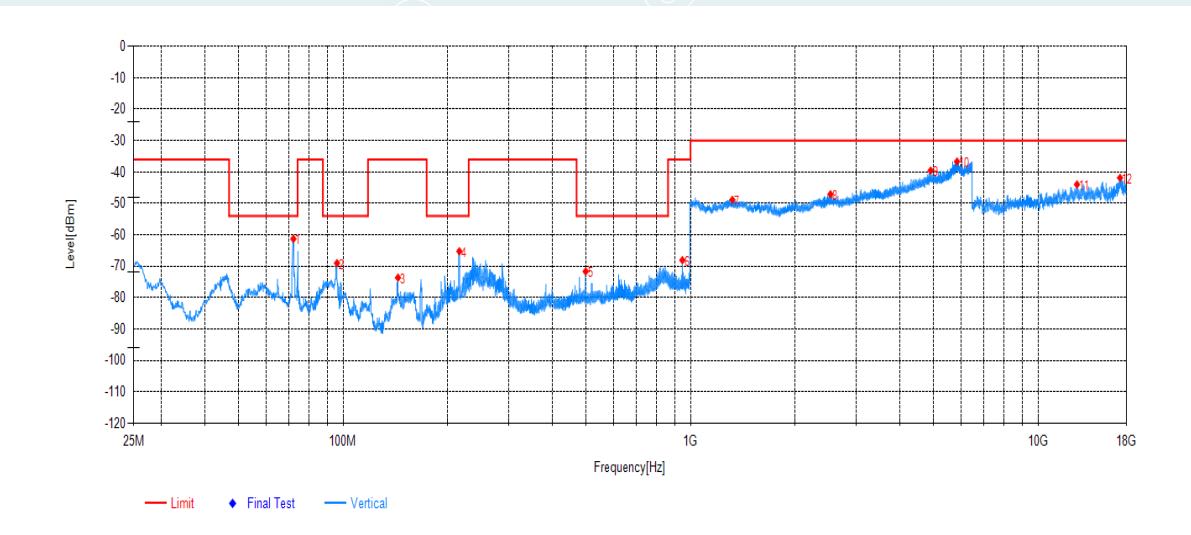
Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.995	-47.12	-68.68	-54.00	14.68	-21.56	PK	Horizontal
2	144.0475	-51.84	-71.18	-36.00	35.18	-19.34	PK	Horizontal
3	216.3925	-48.94	-66.25	-54.00	12.25	-17.31	PK	Horizontal
4	250.3225	-51.85	-67.69	-36.00	31.69	-15.84	PK	Horizontal
5	383.995	-59.43	-71.36	-36.00	35.36	-11.93	PK	Horizontal
6	624.04	-60.18	-68.35	-54.00	14.35	-8.17	PK	Horizontal
7	1377.3	-62.56	-47.17	-30.00	17.17	15.39	PK	Horizontal
8	2445.95	-62.27	-46.57	-30.00	16.57	15.70	PK	Horizontal
9	3896.85	-65.81	-43.64	-30.00	13.64	22.17	PK	Horizontal
10	5710.75	-64.42	-33.88	-30.00	3.88	30.54	PK	Horizontal
11	13589.75	-60.38	-43.65	-30.00	13.65	16.73	PK	Horizontal
12	17249.05	-61.86	-41.20	-30.00	11.20	20.66	PK	Horizontal

Final Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	5710.75	-63.42	-32.88	-30.00	2.88	30.54	PK	Horizontal

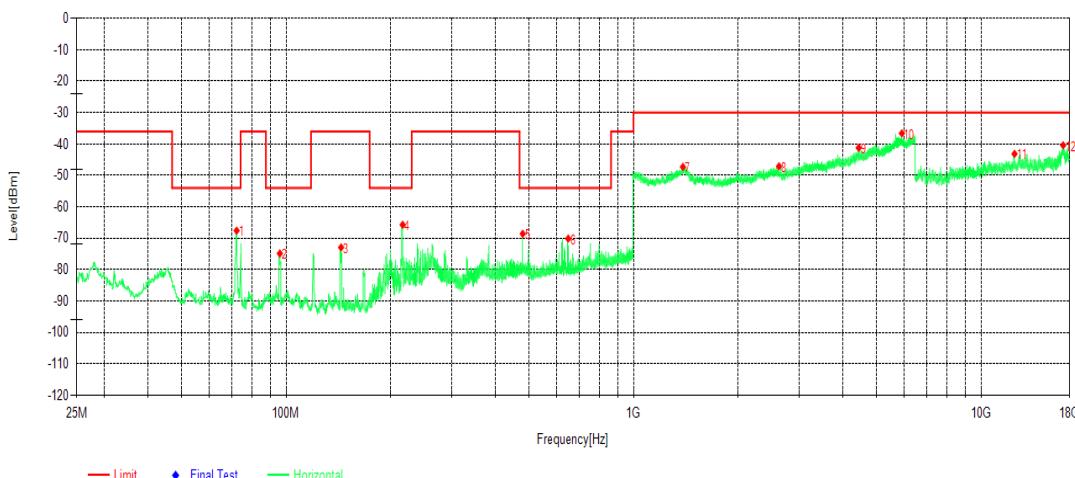
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11n HT40 5795MHz	Voltage:	AC 230V/50Hz
Environment:	24.8 °C/42% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.995	-42.58	-61.26	-54.00	7.26	-18.68	PK	Vertical
2	96.0775	-49.69	-69.00	-54.00	15.00	-19.31	PK	Vertical
3	143.95	-54.32	-73.61	-36.00	37.61	-19.29	PK	Vertical
4	216.1975	-47.70	-65.22	-54.00	11.22	-17.52	PK	Vertical
5	499.045	-62.03	-71.62	-54.00	17.62	-9.59	PK	Vertical
6	947.6425	-65.16	-68.05	-36.00	32.05	-2.89	PK	Vertical
7	1319.55	-62.63	-48.87	-30.00	18.87	13.76	PK	Vertical
8	2527.9	-63.29	-47.09	-30.00	17.09	16.20	PK	Vertical
9	4913.25	-66.93	-39.53	-30.00	9.53	27.40	PK	Vertical
10	5851.55	-68.23	-36.65	-30.00	6.65	31.58	PK	Vertical
11	12952.65	-60.25	-43.95	-30.00	13.95	16.30	PK	Vertical
12	17231.8	-61.91	-41.87	-30.00	11.87	20.04	PK	Vertical

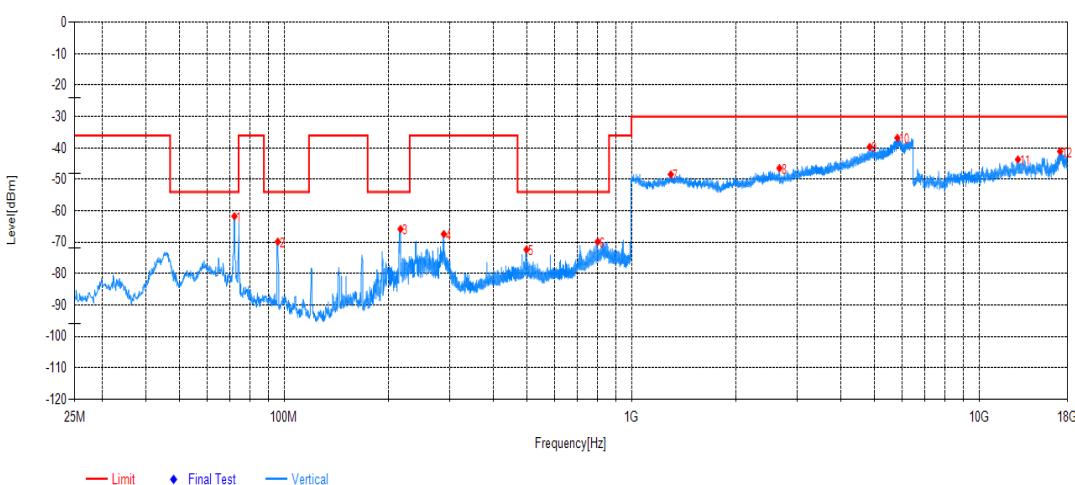
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT20 5745MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	72.0925	-45.98	-67.56	-54.00	13.56	-21.58	PK	Horizontal
2	95.98	-57.98	-74.84	-54.00	20.84	-16.86	PK	Horizontal
3	144.0475	-53.58	-72.92	-36.00	36.92	-19.34	PK	Horizontal
4	216.5875	-48.37	-65.68	-54.00	11.68	-17.31	PK	Horizontal
5	480.0325	-57.21	-68.54	-54.00	14.54	-11.33	PK	Horizontal
6	648.7075	-62.40	-70.09	-54.00	16.09	-7.69	PK	Horizontal
7	1387.2	-62.92	-47.25	-30.00	17.25	15.67	PK	Horizontal
8	2623.05	-63.44	-47.09	-30.00	17.09	16.35	PK	Horizontal
9	4450.7	-66.15	-41.20	-30.00	11.20	24.95	PK	Horizontal
10	5920.3	-67.68	-36.62	-30.00	6.62	31.06	PK	Horizontal
11	12493.8	-58.16	-43.11	-30.00	13.11	15.05	PK	Horizontal
12	17253.65	-61.08	-40.42	-30.00	10.42	20.66	PK	Horizontal

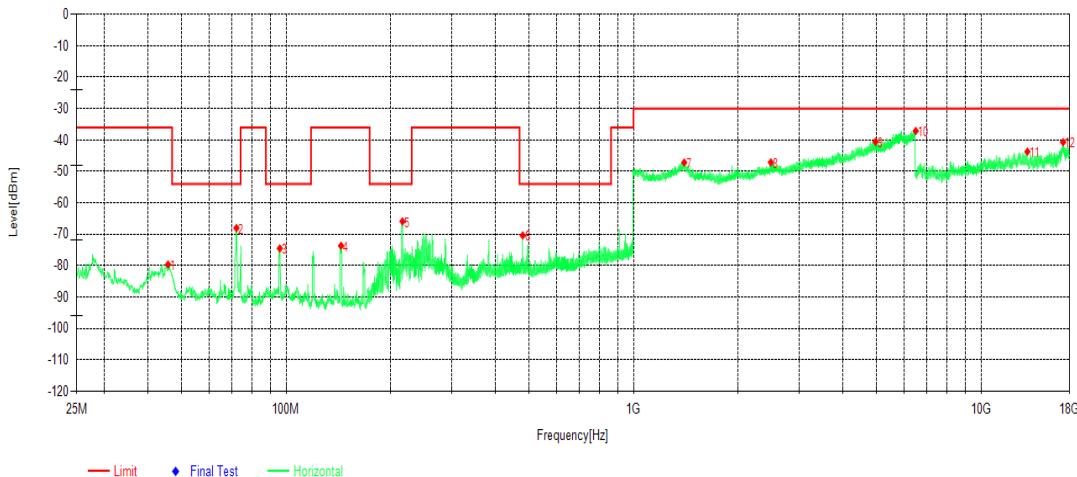
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT20 5745MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.995	-43.04	-61.72	-54.00	7.72	-18.68	PK	Vertical
2	95.98	-50.50	-69.81	-54.00	15.81	-19.31	PK	Vertical
3	216.49	-48.25	-65.77	-54.00	11.77	-17.52	PK	Vertical
4	288.445	-52.86	-67.40	-36.00	31.40	-14.54	PK	Vertical
5	498.85	-62.73	-72.33	-54.00	18.33	-9.60	PK	Vertical
6	800.0275	-64.39	-69.80	-54.00	15.80	-5.41	PK	Vertical
7	1298.1	-62.10	-48.39	-30.00	18.39	13.71	PK	Vertical
8	2664.85	-62.57	-46.44	-30.00	16.44	16.13	PK	Vertical
9	4847.25	-66.35	-39.65	-30.00	9.65	26.70	PK	Vertical
10	5826.25	-68.25	-36.76	-30.00	6.76	31.49	PK	Vertical
11	12958.4	-59.87	-43.64	-30.00	13.64	16.23	PK	Vertical
12	17124.85	-61.22	-41.07	-30.00	11.07	20.15	PK	Vertical

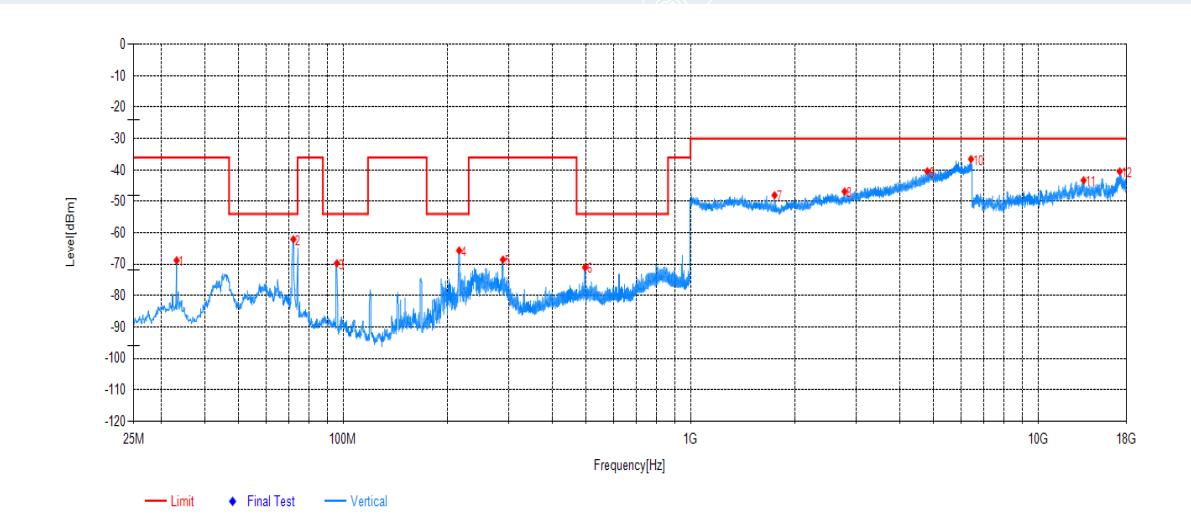
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT20 5825MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	45.7675	-63.99	-79.60	-36.00	43.60	-15.61	PK	Horizontal
2	71.995	-46.47	-68.03	-54.00	14.03	-21.56	PK	Horizontal
3	95.98	-57.65	-74.51	-54.00	20.51	-16.86	PK	Horizontal
4	144.0475	-54.28	-73.62	-36.00	37.62	-19.34	PK	Horizontal
5	216.3925	-48.57	-65.88	-54.00	11.88	-17.31	PK	Horizontal
6	480.0325	-59.03	-70.36	-54.00	16.36	-11.33	PK	Horizontal
7	1399.85	-63.18	-47.14	-30.00	17.14	16.04	PK	Horizontal
8	2486.1	-63.20	-47.11	-30.00	17.11	16.09	PK	Horizontal
9	4966.6	-67.94	-40.56	-30.00	10.56	27.38	PK	Horizontal
10	6494.5	-68.43	-37.12	-30.00	7.12	31.31	PK	Horizontal
11	13605.85	-60.34	-43.68	-30.00	13.68	16.66	PK	Horizontal
12	17238.7	-61.31	-40.68	-30.00	10.68	20.63	PK	Horizontal

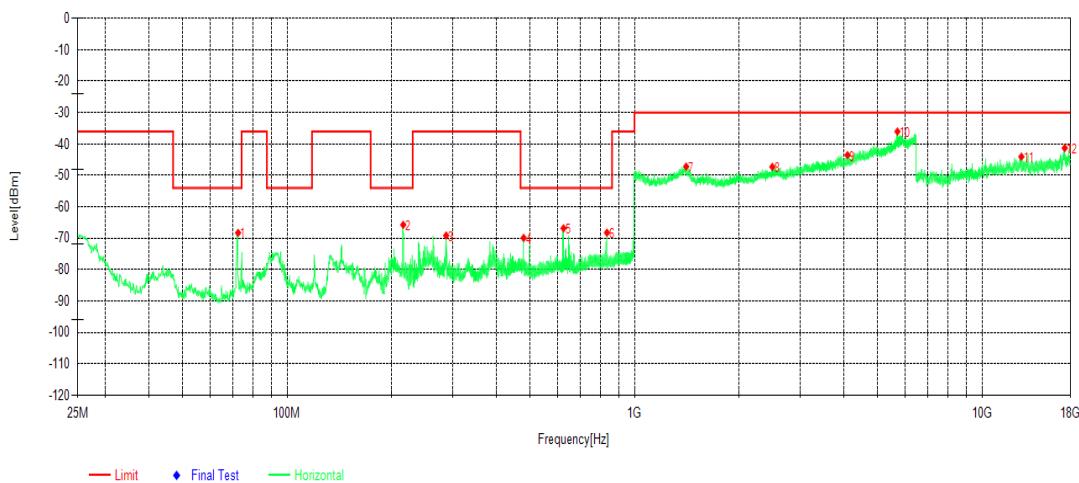
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT20 5825MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	33.19	-52.26	-68.77	-36.00	32.77	-16.51	PK	Vertical
2	71.995	-43.36	-62.04	-54.00	8.04	-18.68	PK	Vertical
3	95.98	-50.38	-69.69	-54.00	15.69	-19.31	PK	Vertical
4	215.8075	-48.09	-65.61	-54.00	11.61	-17.52	PK	Vertical
5	288.5425	-53.99	-68.52	-36.00	32.52	-14.53	PK	Vertical
6	497.5825	-61.28	-71.01	-54.00	17.01	-9.73	PK	Vertical
7	1746.35	-60.38	-48.02	-30.00	18.02	12.36	PK	Vertical
8	2778.7	-63.38	-46.85	-30.00	16.85	16.53	PK	Vertical
9	4806	-67.17	-40.39	-30.00	10.39	26.78	PK	Vertical
10	6419.7	-67.43	-36.53	-30.00	6.53	30.90	PK	Vertical
11	13536.85	-59.39	-43.26	-30.00	13.26	16.13	PK	Vertical
12	17200.75	-60.47	-40.46	-30.00	10.46	20.01	PK	Vertical

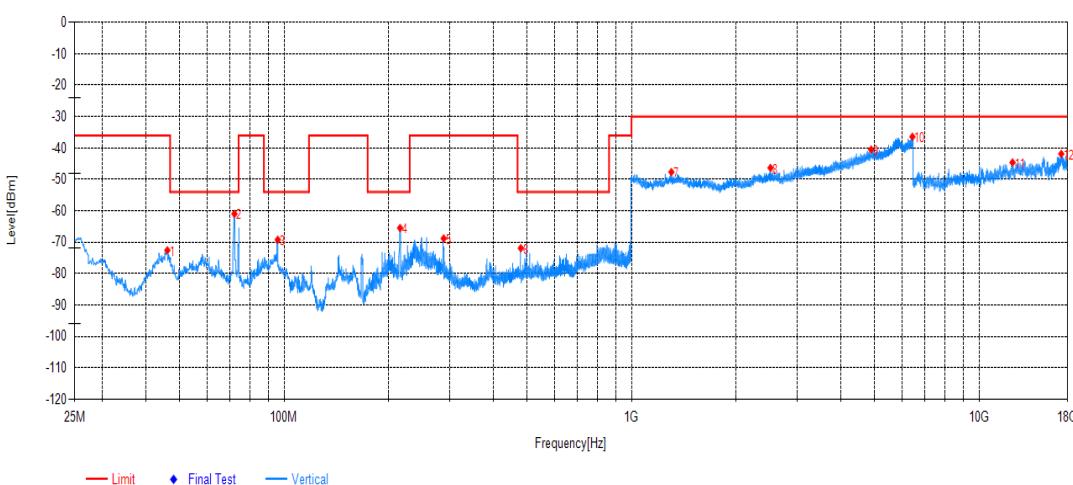
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT40 5755MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	72.2875	-46.64	-68.27	-54.00	14.27	-21.63	PK	Horizontal
2	216.0025	-48.42	-65.74	-54.00	11.74	-17.32	PK	Horizontal
3	287.08	-54.95	-69.11	-36.00	33.11	-14.16	PK	Horizontal
4	479.935	-58.54	-69.87	-54.00	15.87	-11.33	PK	Horizontal
5	625.015	-58.67	-66.82	-54.00	12.82	-8.15	PK	Horizontal
6	833.5675	-63.22	-68.23	-54.00	14.23	-5.01	PK	Horizontal
7	1409.2	-62.94	-47.18	-30.00	17.18	15.76	PK	Horizontal
8	2494.35	-63.42	-47.25	-30.00	17.25	16.17	PK	Horizontal
9	4104.2	-66.01	-43.53	-30.00	13.53	22.48	PK	Horizontal
10	5711.85	-66.57	-36.03	-30.00	6.03	30.54	PK	Horizontal
11	12988.3	-60.11	-44.02	-30.00	14.02	16.09	PK	Horizontal
12	17312.3	-61.47	-41.27	-30.00	11.27	20.20	PK	Horizontal

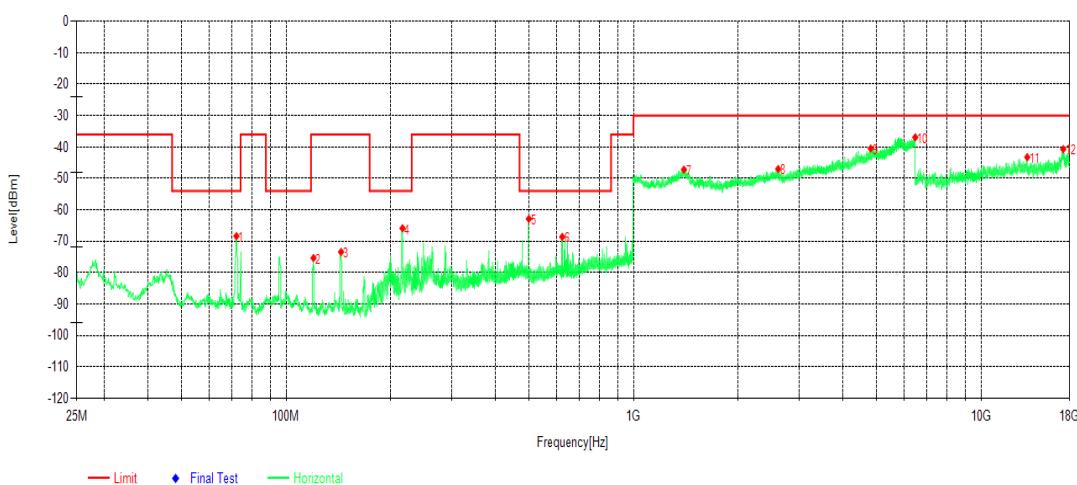
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT40 5755MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	46.1575	-58.91	-72.56	-36.00	36.56	-13.65	PK	Vertical
2	71.995	-42.26	-60.94	-54.00	6.94	-18.68	PK	Vertical
3	95.98	-49.88	-69.19	-54.00	15.19	-19.31	PK	Vertical
4	215.71	-47.92	-65.44	-54.00	11.44	-17.52	PK	Vertical
5	287.9575	-54.24	-68.78	-36.00	32.78	-14.54	PK	Vertical
6	480.0325	-60.61	-71.89	-54.00	17.89	-11.28	PK	Vertical
7	1302.5	-61.39	-47.65	-30.00	17.65	13.74	PK	Vertical
8	2511.4	-62.58	-46.33	-30.00	16.33	16.25	PK	Vertical
9	4895.65	-67.75	-40.47	-30.00	10.47	27.28	PK	Vertical
10	6436.75	-67.41	-36.39	-30.00	6.39	31.02	PK	Vertical
11	12498.4	-59.98	-44.60	-30.00	14.60	15.38	PK	Vertical
12	17252.5	-61.91	-41.86	-30.00	11.86	20.05	PK	Vertical

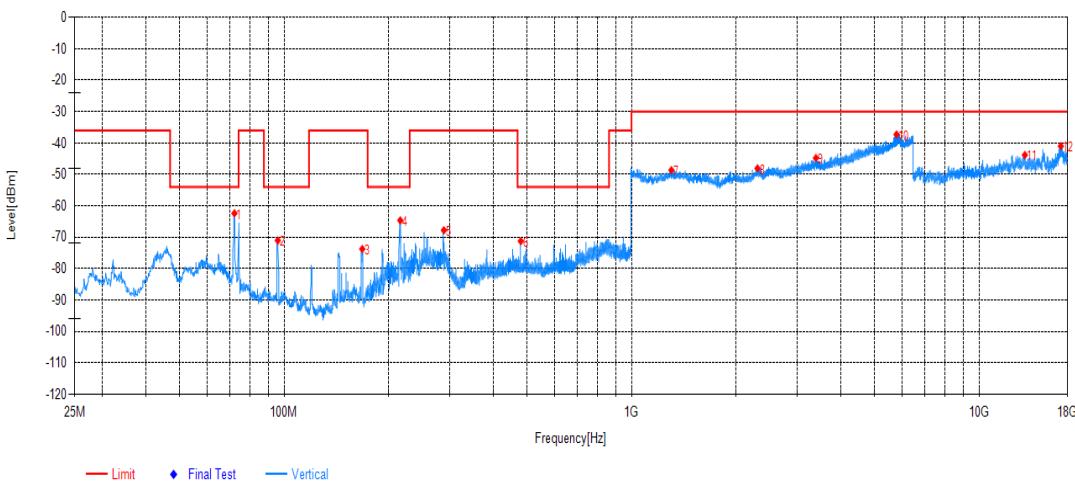
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT40 5795MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.995	-46.81	-68.37	-54.00	14.37	-21.56	PK	Horizontal
2	119.965	-56.81	-75.33	-36.00	39.33	-18.52	PK	Horizontal
3	144.0475	-54.05	-73.39	-36.00	37.39	-19.34	PK	Horizontal
4	216.295	-48.54	-65.85	-54.00	11.85	-17.31	PK	Horizontal
5	500.02	-52.49	-62.86	-54.00	8.86	-10.37	PK	Horizontal
6	623.845	-60.42	-68.59	-54.00	14.59	-8.17	PK	Horizontal
7	1396.55	-63.14	-47.20	-30.00	17.20	15.94	PK	Horizontal
8	2608.2	-63.39	-46.99	-30.00	16.99	16.40	PK	Horizontal
9	4818.65	-67.03	-40.48	-30.00	10.48	26.55	PK	Horizontal
10	6471.4	-68.11	-36.92	-30.00	6.92	31.19	PK	Horizontal
11	13592.05	-59.98	-43.22	-30.00	13.22	16.76	PK	Horizontal
12	17253.65	-61.30	-40.64	-30.00	10.64	20.66	PK	Horizontal

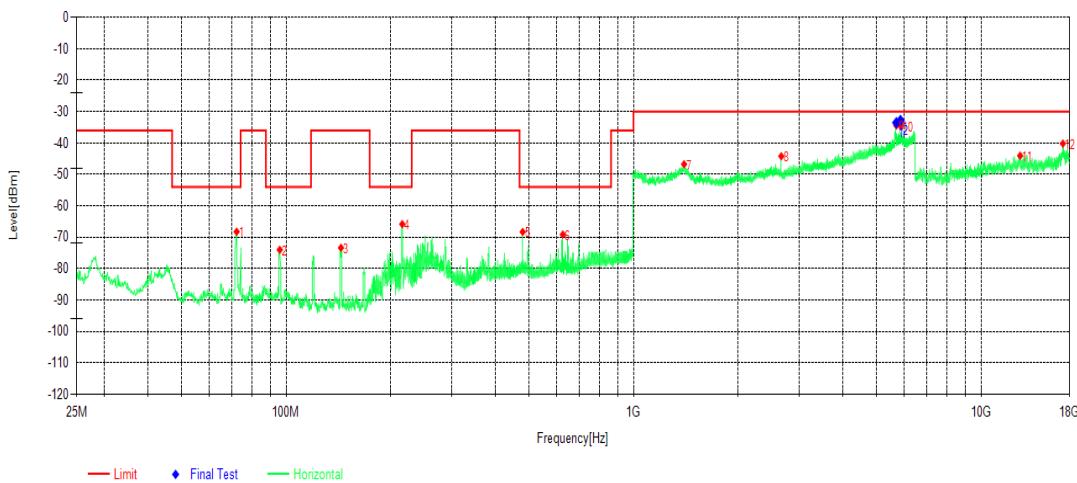
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT40 5795MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.995	-43.69	-62.37	-54.00	8.37	-18.68	PK	Vertical
2	95.98	-51.70	-71.01	-54.00	17.01	-19.31	PK	Vertical
3	167.935	-55.85	-73.72	-36.00	37.72	-17.87	PK	Vertical
4	216.1	-47.11	-64.63	-54.00	10.63	-17.52	PK	Vertical
5	288.445	-53.23	-67.77	-36.00	31.77	-14.54	PK	Vertical
6	480.0325	-59.95	-71.23	-54.00	17.23	-11.28	PK	Vertical
7	1303.05	-62.37	-48.63	-30.00	18.63	13.74	PK	Vertical
8	2305.7	-64.01	-48.07	-30.00	18.07	15.94	PK	Vertical
9	3394.7	-64.63	-44.77	-30.00	14.77	19.86	PK	Vertical
10	5793.8	-68.65	-37.30	-30.00	7.30	31.35	PK	Vertical
11	13558.7	-60.19	-43.80	-30.00	13.80	16.39	PK	Vertical
12	17214.55	-61.02	-40.99	-30.00	10.99	20.03	PK	Vertical

Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT80 5775MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



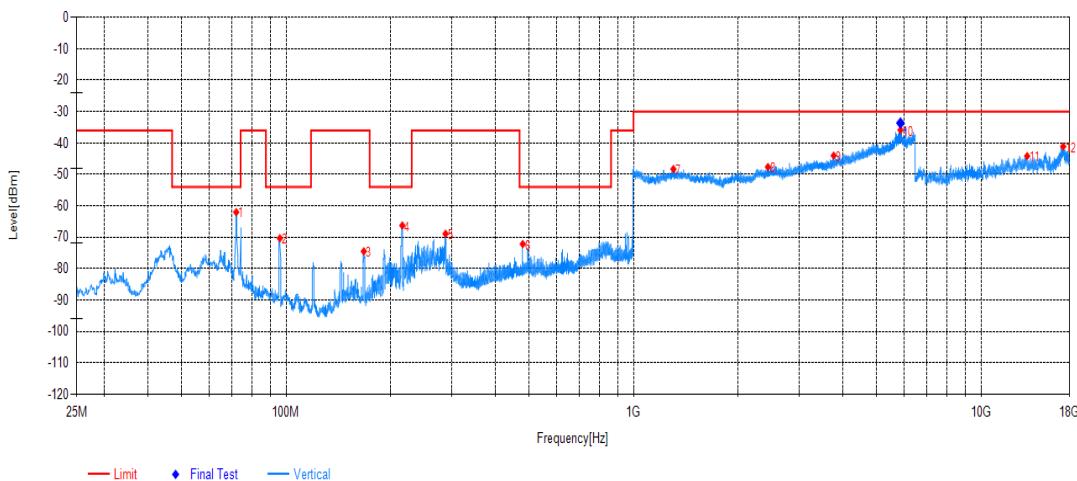
Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	72.0925	-46.63	-68.21	-54.00	14.21	-21.58	PK	Horizontal
2	95.98	-57.12	-73.98	-54.00	19.98	-16.86	PK	Horizontal
3	143.95	-54.02	-73.34	-36.00	37.34	-19.32	PK	Horizontal
4	216.0025	-48.50	-65.82	-54.00	11.82	-17.32	PK	Horizontal
5	480.0325	-56.95	-68.28	-54.00	14.28	-11.33	PK	Horizontal
6	626.0875	-60.99	-69.13	-54.00	15.13	-8.14	PK	Horizontal
7	1398.2	-62.72	-46.73	-30.00	16.73	15.99	PK	Horizontal
8	2663.75	-60.24	-44.20	-30.00	14.20	16.04	PK	Horizontal
9	5711.3	-64.97	-34.43	-30.00	4.43	30.54	PK	Horizontal
10	5866.4	-65.69	-34.44	-30.00	4.44	31.25	PK	Horizontal
11	12974.5	-60.29	-44.03	-30.00	14.03	16.26	PK	Horizontal
12	17220.3	-60.72	-40.17	-30.00	10.17	20.55	PK	Horizontal

Final Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	5711.3	-64.06	-33.52	-30.00	3.52	30.54	PK	Horizontal
2	5866.4	-64.07	-32.82	-30.00	2.82	31.25	PK	Horizontal

Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11ac VHT80 5775MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.8975	-43.36	-62.00	-54.00	8.00	-18.64	PK	Vertical
2	95.98	-50.99	-70.30	-54.00	16.30	-19.31	PK	Vertical
3	167.4475	-56.61	-74.46	-36.00	38.46	-17.85	PK	Vertical
4	216.1	-48.72	-66.24	-54.00	12.24	-17.52	PK	Vertical
5	287.86	-54.33	-68.88	-36.00	32.88	-14.55	PK	Vertical
6	480.0325	-60.87	-72.15	-54.00	18.15	-11.28	PK	Vertical
7	1303.05	-62.02	-48.28	-30.00	18.28	13.74	PK	Vertical
8	2437.15	-63.24	-47.63	-30.00	17.63	15.61	PK	Vertical
9	3770.35	-65.10	-44.00	-30.00	14.00	21.10	PK	Vertical
10	5866.4	-67.49	-35.87	-30.00	5.87	31.62	PK	Vertical
11	13590.9	-60.70	-44.15	-30.00	14.15	16.55	PK	Vertical
12	17246.75	-61.16	-41.10	-30.00	11.10	20.06	PK	Vertical

Final Data List

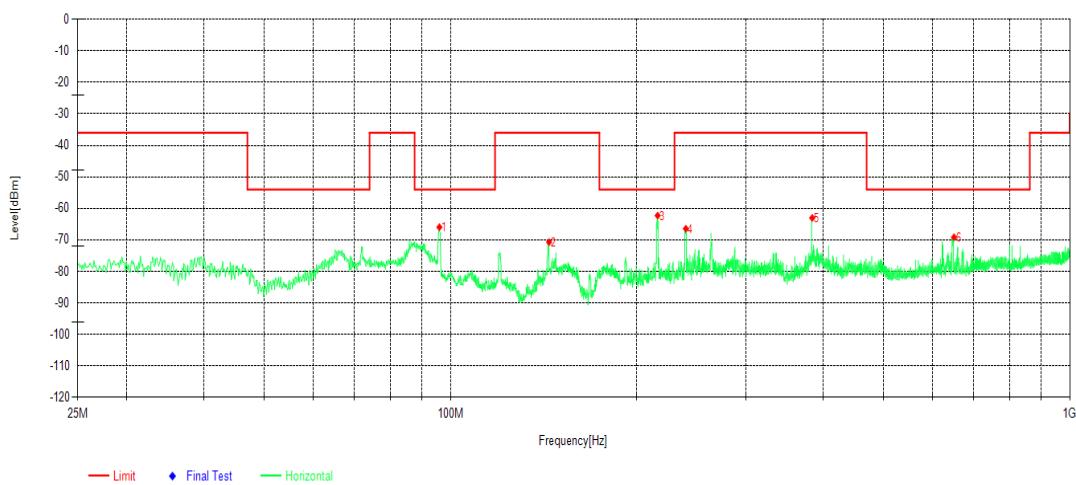
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	5866.4	-65.25	-33.63	-30.00	3.63	31.62	PK	Vertical

25MHz-1GHz

Power supply: AC 230V/50Hz(DC 48V/0.27A power by PoE Adapter)

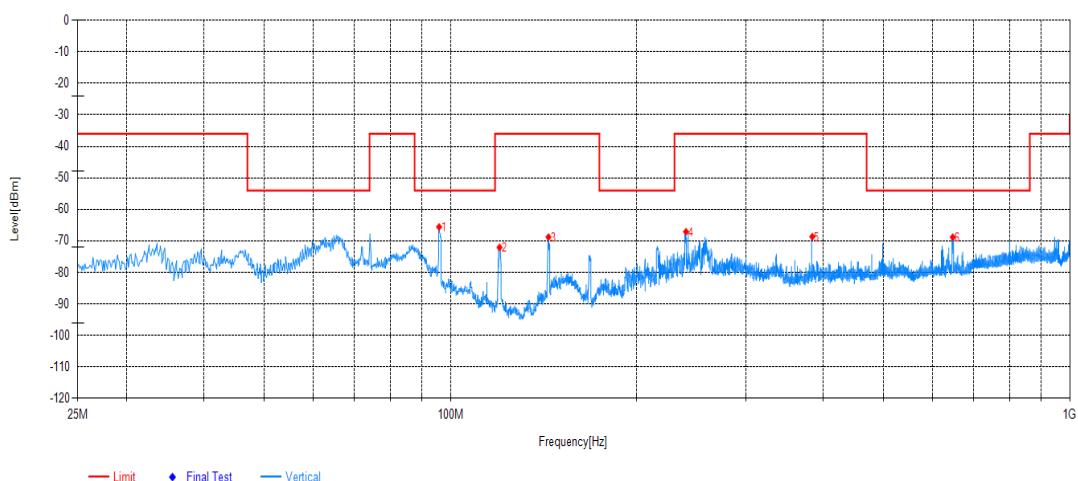
Pre-scan all modes and recorded the worst case results(TX 802.11a 5825MHz) in this report.

Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11a 5825MHz	Voltage:	AC 230V/50Hz
Environment:	25.6°C/47% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-24	/	/

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	95.96	-49.13	-65.99	-54.00	11.99	-16.86	PK	Horizontal
2	144.266	-51.36	-70.75	-36.00	34.75	-19.39	PK	Horizontal
3	216.046	-44.99	-62.31	-54.00	8.31	-17.32	PK	Horizontal
4	239.908	-50.17	-66.47	-36.00	30.47	-16.30	PK	Horizontal
5	383.953	-51.14	-63.07	-36.00	27.07	-11.93	PK	Horizontal
6	650.315	-61.52	-69.22	-54.00	15.22	-7.70	PK	Horizontal

Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11a 5825MHz	Voltage:	AC 230V/50Hz
Environment:	25.6 °C/47% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-24	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	95.863	-46.31	-65.63	-54.00	11.63	-19.32	PK	Vertical
2	120.016	-52.11	-72.11	-36.00	36.11	-20.00	PK	Vertical
3	143.975	-49.57	-68.86	-36.00	32.86	-19.29	PK	Vertical
4	240.102	-51.67	-67.12	-36.00	31.12	-15.45	PK	Vertical
5	383.953	-56.05	-68.68	-36.00	32.68	-12.63	PK	Vertical
6	647.405	-61.64	-68.87	-54.00	14.87	-7.23	PK	Vertical

18GHz~40GHz

Note: The worst power supply is AC 230/50Hz(DC 5V/2A power by Adapter) and pre-scan all modes than recorded the worst case results in this report. (IEEE 802.11a)

Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11a 5745MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	18831.6	-58.85	-60.77	-30.00	30.77	-1.92	PK	Horizontal
2	21885.2	-61.30	-59.53	-30.00	29.53	1.77	PK	Horizontal
3	25860.6	-63.40	-58.57	-30.00	28.57	4.83	PK	Horizontal
4	31178	-59.12	-55.49	-30.00	25.49	3.63	PK	Horizontal
5	35597.8	-61.25	-55.09	-30.00	25.09	6.16	PK	Horizontal
6	38121.2	-64.33	-54.97	-30.00	24.97	9.36	PK	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	18750.2	-59.27	-61.13	-30.00	31.13	-1.86	PK	Vertical
2	21313.2	-61.49	-60.32	-30.00	30.32	1.17	PK	Vertical
3	24078.6	-62.03	-59.25	-30.00	29.25	2.78	PK	Vertical
4	28467.6	-60.98	-57.79	-30.00	27.79	3.19	PK	Vertical
5	33888.4	-59.90	-55.57	-30.00	25.57	4.33	PK	Vertical
6	38178.4	-64.58	-55.07	-30.00	25.07	9.51	PK	Vertical

Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	TX 802.11a 5825MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	18294.8	-58.75	-60.94	-30.00	30.94	-2.19	PK	Horizontal
2	21262.6	-61.68	-59.87	-30.00	29.87	1.81	PK	Horizontal
3	24657.2	-63.23	-58.73	-30.00	28.73	4.50	PK	Horizontal
4	28696.4	-61.13	-57.65	-30.00	27.65	3.48	PK	Horizontal
5	33006.2	-60.22	-56.39	-30.00	26.39	3.83	PK	Horizontal
6	37883.6	-64.64	-55.50	-30.00	25.50	9.14	PK	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	18248.6	-59.10	-61.30	-30.00	31.30	-2.20	PK	Vertical
2	21326.4	-61.17	-60.07	-30.00	30.07	1.10	PK	Vertical
3	25363.4	-63.23	-59.58	-30.00	29.58	3.65	PK	Vertical
4	29831.6	-61.11	-58.67	-30.00	28.67	2.44	PK	Vertical
5	35782.6	-61.12	-54.35	-30.00	24.35	6.77	PK	Vertical
6	39421.4	-64.71	-55.39	-30.00	25.39	9.32	PK	Vertical

5. RECEIVER REQUIREMENTS

5.1 BLOCKING OR DESENSITIZATION

5.1.1 LIMITS

The blocking level, for any frequency within the specified ranges, shall not be less than the values given in table 6, except at frequencies on which spurious responses are found.

Table 6: Limits for blocking or desensitization

Receiver category	Limit
1	-30 dBm + k
2	-45 dBm + k
3	-60 dBm + k

The correction factor, k, is as follows:

$$k = -20\log f - 10\log BW$$

Where:

- f is the frequency in GHz;
- BW is the occupied bandwidth in MHz.

The factor k is limited within the following:

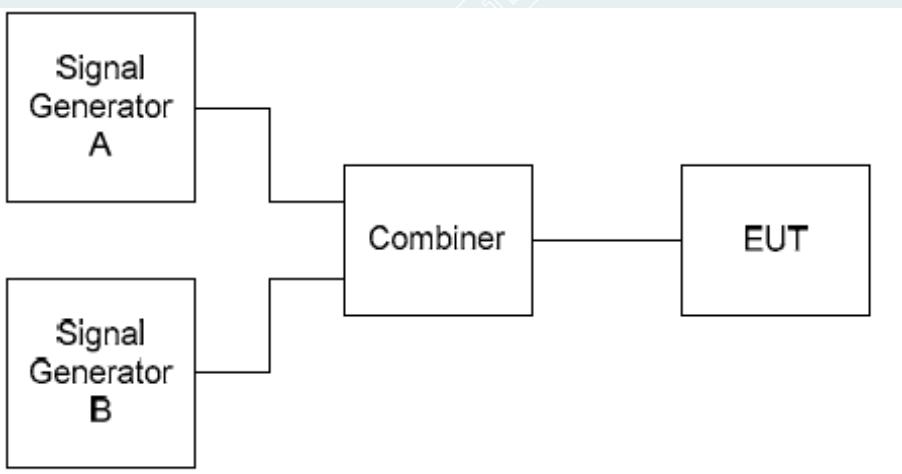
- $-40 \text{ dB} < k < 0 \text{ dB}$.

The measured blocking level shall be stated in the test report.

5.1.2 TEST PROCEDURE

Test requirement:	ETSI EN 300 440 clause 4.3.4
Test Method:	ETSI EN 300 440 clause 4.3.4.3
Status:	Keep the EUT on the lowest and Highest channel working mode.
Test channel:	IEEE 802.11a mode :5745 MHz, 5825 MHz
Test condition:	Normal test conditions.

5.1.3 TEST SETUP



----- The following blanks -----

5.1.4 TEST RESULTS

Test Date (yy-mm-dd): 2023-12-06

Test environment: Normal condition:

26.5°C/58% RH/101.0kPa

Test Engineer: Huang Tianmei

TestMode	Antenna	Freq(MHz)	Wanted SignalLevel [dBm]	Freq. [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
IEEE 802.11a	Ant4	5745	-83.98	4916.6485	-50	-66.34	-72.34	PASS
			-83.98	5408.7385	-20	-66.34	-72.34	PASS
			-83.98	5572.7685	-10	-65.34	-72.34	PASS
			-83.98	5917.2315	10	-62.34	-72.34	PASS
			-83.98	6081.2615	20	-66.34	-72.34	PASS
			-83.98	6573.3515	50	-66.34	-72.34	PASS
			-83.86	4995.285	-50	-66.46	-72.46	PASS
		5825	-83.86	5488.185	-20	-66.46	-72.46	PASS
			-83.86	5652.485	-10	-64.46	-72.46	PASS
			-83.86	5997.515	10	-64.46	-72.46	PASS
			-83.86	6161.815	20	-66.46	-72.46	PASS
			-83.86	6654.715	50	-66.46	-72.46	PASS

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5.2 SPURIOUS EMISSIONS FOR RX

5.2.1. LIMITS

Frequency range	Limit
25 MHz to 1 GHz	-57 dBm
above 1 GHz	-47 dBm

5.2.2. TEST PROCEDURE

Test channel: IEEE 802.11a/n HT20/ac VHT20 mode :5745 MHz, 5825 MHz;
IEEE 802.11n HT40/ac VHT40 mode :5755 MHz, 5795 MHz;
IEEE 802.11ac VHT80 mode :5775 MHz

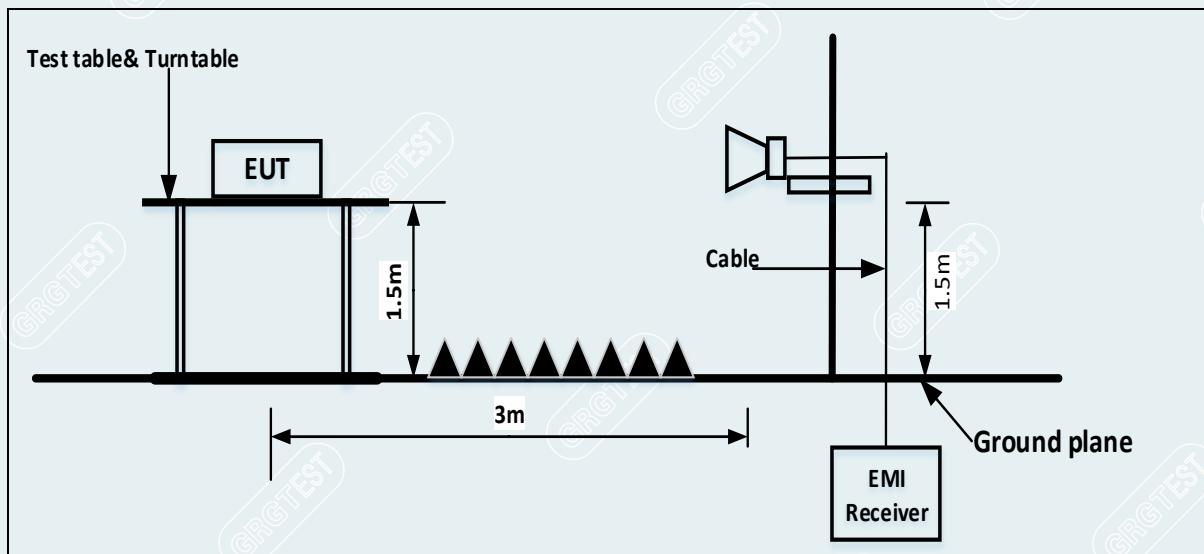
Test condition: Normal test conditions.

Test procedure: ETSI EN 300440 clause 4.3.5.3.3 and annex E

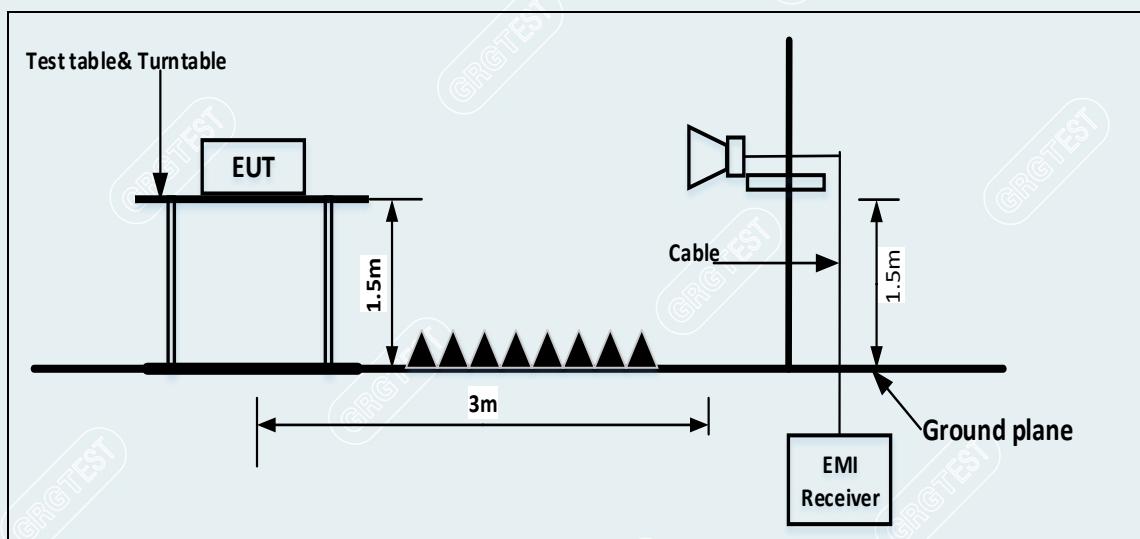
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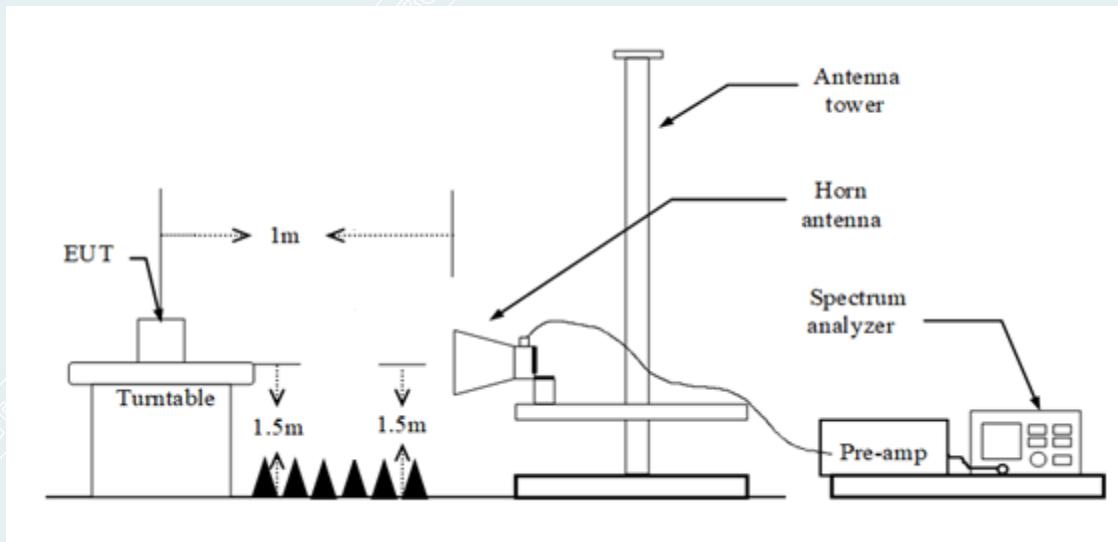
5.2.3. TEST SETUP

Below 1GHz



1GHz-18GHz



Above 18GHz**5.2.4. DATA SAMPLE**

Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
XXX	-58.02	-73.33	-57.00	16.33	-15.31	PK	Horizontal

Frequency (MHz) = Emission frequency in MHz

Reading (dBm) = Uncorrected Analyzer / Receiver reading

Level (dBm) = Reading (dBm) + Factor (dB)

Limit (dBm) = Limit stated in standard

Margin (dB) = Limit(dBm) – Level (dBm)

PK = Peak

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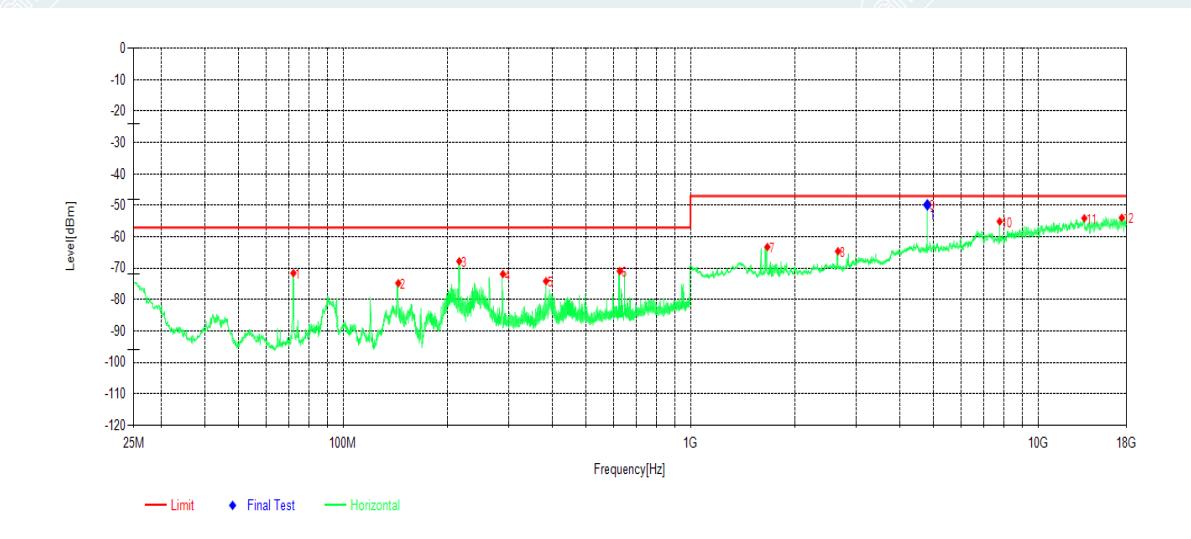
5.2.5. TEST RESULTS

25MHz-18GHz

Pre-scan all modes, the worst power supply is AC 230/50Hz(DC 5V/2A power by Adapter) . In the worst power supply mode, recorded the worst case results(RX 802.11a 5825MHz) in this report.

Power supply: AC 230V/50Hz (DC 5V/2A power by Adapter)

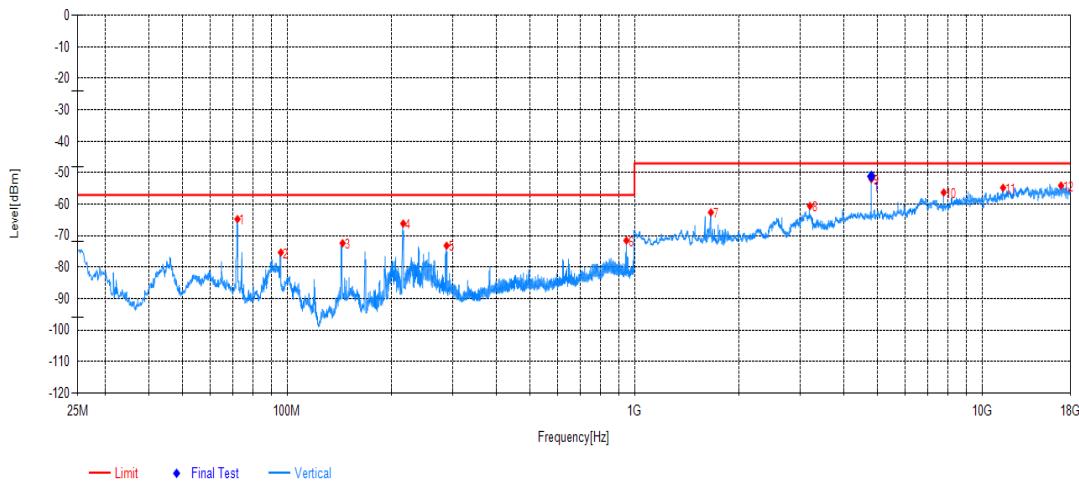
Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	RX 802.11a 5825MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.995	-49.99	-71.55	-57.00	14.55	-21.56	PK	Horizontal
2	144.2425	-55.36	-74.75	-57.00	17.75	-19.39	PK	Horizontal
3	216.0025	-50.44	-67.76	-57.00	10.76	-17.32	PK	Horizontal
4	288.445	-57.69	-71.82	-57.00	14.82	-14.13	PK	Horizontal
5	383.995	-62.15	-74.08	-57.00	17.08	-11.93	PK	Horizontal
6	626.185	-62.77	-70.90	-57.00	13.90	-8.13	PK	Horizontal
7	1664.7	-50.29	-63.22	-47.00	16.22	-12.93	PK	Horizontal
8	2657.5	-54.58	-64.57	-47.00	17.57	-9.99	PK	Horizontal
9	4806.3	-47.63	-49.58	-47.00	2.58	-1.95	PK	Horizontal
10	7766	-59.92	-55.10	-47.00	8.10	4.82	PK	Horizontal
11	13598.7	-70.40	-54.07	-47.00	7.07	16.33	PK	Horizontal
12	17435.6	-71.93	-53.88	-47.00	6.88	18.05	PK	Horizontal

Final Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	4806.3	-47.86	-49.81	-47.00	2.81	-1.95	PK	Horizontal

Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	RX 802.11a 5825MHz	Voltage:	AC 230V/50Hz
Environment:	25.2 °C/46% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-23	/	/



Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	71.995	-46.00	-64.68	-57.00	7.68	-18.68	PK	Vertical
2	95.98	-56.00	-75.31	-57.00	18.31	-19.31	PK	Vertical
3	144.535	-53.12	-72.36	-57.00	15.36	-19.24	PK	Vertical
4	216.0025	-48.60	-66.12	-57.00	9.12	-17.52	PK	Vertical
5	288.055	-58.60	-73.14	-57.00	16.14	-14.54	PK	Vertical
6	947.6425	-68.60	-71.49	-57.00	14.49	-2.89	PK	Vertical
7	1659.6	-49.97	-62.58	-47.00	15.58	-12.61	PK	Vertical
8	3199.8	-53.52	-60.52	-47.00	13.52	-7.00	PK	Vertical
9	4806.3	-50.24	-51.97	-47.00	4.97	-1.73	PK	Vertical
10	7766	-61.26	-56.24	-47.00	9.24	5.02	PK	Vertical
11	11504.3	-68.49	-54.74	-47.00	7.74	13.75	PK	Vertical
12	16900.1	-70.96	-54.01	-47.00	7.01	16.95	PK	Vertical

Final Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	4806.3	-49.37	-51.10	-47.00	4.10	-1.73	PK	Vertical

18GHz-40GHz

Pre-scan all modes, the worst power supply is AC 230/50Hz(DC 5V/2A power by Adapter) . In the worst power supply mode, recorded the worst case results (IEEE 802.11a 5825MHz) in this report.

Project No	E20230331478001	EUT:	Hub M3
Model:	HM-G01E	Sample No:	E20230331478001-0004
Mode:	RX 802.11a 5825MHz	Voltage:	AC 230V/50Hz
Environment:	24.8°C/42% RH/101.0kPa	Engineer:	Gong Xuan
Test Date:	2023-11-22	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	20197.8	-60.53	-60.74	-47.00	13.74	-0.21	PK	Horizontal
2	25847.4	-63.79	-58.98	-47.00	11.98	4.81	PK	Horizontal
3	30399.2	-60.68	-57.71	-47.00	10.71	2.97	PK	Horizontal
4	32342.9	-60.29	-56.76	-47.00	9.76	3.53	PK	Horizontal
5	35727.6	-61.11	-55.05	-47.00	8.05	6.06	PK	Horizontal
6	39624.9	-65.06	-56.00	-47.00	9.00	9.06	PK	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	18757.9	-59.57	-61.43	-47.00	14.43	-1.86	PK	Vertical
2	21279.1	-61.19	-59.84	-47.00	12.84	1.35	PK	Vertical
3	24746.3	-64.17	-59.30	-47.00	12.30	4.87	PK	Vertical
4	28555.6	-61.71	-58.64	-47.00	11.64	3.07	PK	Vertical
5	32323.1	-60.10	-56.29	-47.00	9.29	3.81	PK	Vertical
6	38185	-63.83	-54.31	-47.00	7.31	9.52	PK	Vertical

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APPENDIX A: PHOTOGRAPH OF THE TEST ARRANGEMENT

Please refer to the attached document E20230331478001-28 CE-Test Photo.

APPENDIX B: PHOTOGRAPH OF THE EUT

Please refer to the attached document E20230331478001-29 EUT photo.

----- End of Report -----